State of California
The Resources Agency
Department of Water Resources

VEHICULAR ACCESS STUDY

FINAL

R-1

Oroville Facilities Relicensing
FERC Project No. 2100

SEPTEMBER 2003

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FERC Project No. 2100

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REPORT SUMMARY

This study is needed to identify the adequacy of vehicular access routes to the Oroville Facilities recreation areas. Adequate access is needed to accommodate current use and future recreation demand. The Federal Energy Regulatory Commission (FERC) guidelines direct the California Department of Water Resources (DWR) to ensure the public's access to recreation facilities within the Project area. Specifically, FERC guidelines state that the licensee, DWR, shall "make provisions for adequate public access to such project facilities and waters" (Part 2, Subchapter A, Chapter One, Section 2.7 of 18 CFR).

This objective of this study is to examine vehicular access opportunities and constraints to Project area land and water resources. Current access conditions, identification of potential future development, and effects of Project operations on public access are also discussed.

This report summarizes vehicular access to each recreation site within the Project area (Section 5.2). Vehicular access to trailhead points is discussed in Section 5.3. A list of roads, their type and condition are provided in Section 5.4. Future known road development projects are presented in Section 5.4. A summary of constraints to, and opportunities for, vehicular access is listed in the Conclusion, Section 6.0.

In general, transportation routes to Project area recreation sites are without constraints to vehicular access. Roads leading to areas that receive the highest use are paved and in good condition. Average and low use areas are serviced by paved roads in good condition. There are some instances where roads are in poor condition within low use and undeveloped areas, such as within the undeveloped Oroville Wildlife Area (OWA). Recreation management goals will determine what recreation areas will be expanded in the future and thus what roads may need to be widened or improved. If the management goals at the OWA are to avoid significant new development and/or to provide a more primitive driving experience, then it may be appropriate to have low-standard roads.

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ACRONYMS

ADA	Americans with Disabilities Act
af	acre-feet
ATV	all-terrain vehicle
BIC	Boat-In-Camp
BLM	Bureau of Land Management
BR	Boat Ramp
Caltrans	California Department of Transportation
CFR	Code of Federal Regulations
cfs	cubic feet per second
DBW	California Department of Boating and Waterways
DFG	California Department of Fish and Game
DPR	California Department of Parks and Recreation
DUA	Day Use Area
DWR	California Department of Water Resources
FERC	Federal Energy Regulatory Commission
FRSA	Feather River Service Area
GIS	geographic information system
ISO	Independent System Operator
LOSRA	Lake Oroville State Recreation Area
maf	million-acre-feet
msl	mean sea level
MW	megawatt
NMFS	National Marine Fisheries Service
OWA	Oroville Wildlife Area
PM&E	Protection, Mitigation, and Enhancement
RV	recreational vehicle
SR	State Route
SRA	State Recreation Area
STIP	State Transportation Improvement Program
SVRA	State Vehicular Recreation Area
SWP	State Water Project
USACE	U.S. Army Corps of Engineers
USFS	United States Forest Service
USGS	U.S. Geological Survey

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1.0 INTRODUCTION

Ensuring adequate vehicular access to recreation facilities, areas, and trailheads is an important part of recreation management in the study area. This study documents the extent to which public vehicle access routes are facilitating or restricting visits to the recreation features and destinations such as campgrounds and day use areas within the study area.

1.1 BACKGROUND INFORMATION

Three departments have management responsibilities related to recreation facilities within the Project boundary. The departments include Department of Water Resources (DWR), Department of Parks and Recreation (DPR), and Department of Fish and Game (DFG). The California State Transportation Department (Caltrans) is responsible for construction and maintenance of State highways. Butte County is responsible for County roads within the Project area. The City of Oroville has jurisdiction over roads within the City limits. DPR is responsible for access roads within the State Recreation Area (SRA). DWR maintains access roads within the Project boundary that are not within the SRA.

1.2 STUDY AREA

The study area includes Lake Oroville, Thermalito Diversion Pool, Thermalito Forebay, Thermalito Afterbay, the Oroville Wildlife Area (OWA), the lands and waters within and adjacent to (1/4 mile) the FERC Project boundary, and adjacent lands, facilities, and roads (Figure 1.2-1). Table 1.2-1 lists the recreation facilities examined for this study. Roads and highways are listed later in this study (Table 5.2-2).

1.3 DESCRIPTION OF FACILITIES

The Oroville Facilities were developed as part of the State Water Project (SWP), a water storage and delivery system of reservoirs, aqueducts, power plants, and pumping plants. The main purpose of the SWP is to store and distribute water to supplement the needs of urban and agricultural water users in Northern California, the San Francisco Bay area, the San Joaquin Valley, and Southern California. The Oroville Facilities are also operated for flood control power generation, to improve water quality in the Delta, enhance fish and wildlife, and provide recreation.

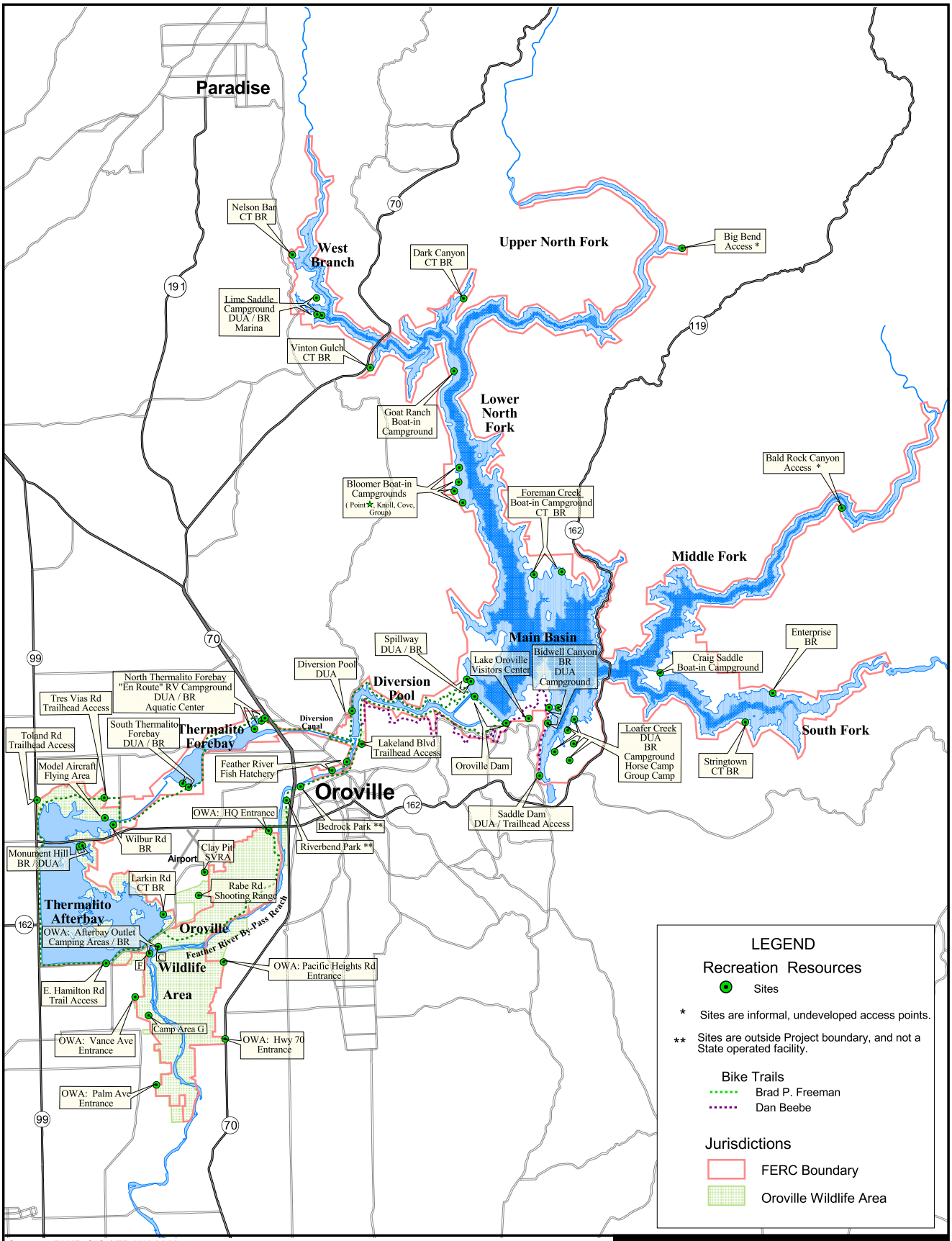
Table 1.2-1. Recreation facilities within the Project area.

Campgrounds	
∉ Bidwell Canyon Campground	∉ Goat Ranch Boat-in Camp (BIC)
∉ Lime Saddle Campground	∉ Foreman Creek BIC
∉ Lime Saddle Group Campground	∉ Craig Saddle BIC
∉ Loafer Creek Campground	∉ Bloomer Cove BIC
∉ Loafer Creek Group Campground	∉ Bloomer Knoll BIC
∉ Loafer Creek Horse Campground	∉ Bloomer Point BIC
∉ North Thermalito Forebay Recreation Vehicle (RV) "en route" Campground	∉ Bloomer Group BIC
∉ Oroville Wildlife Area (Thermalito Afterbay Outlet Camping Area)	
Day Use Areas (DUAs) and Other Recreational Facilities	
∉ Aquatic Center	∉ Model Aircraft Flying Area
∉ Bedrock Park[1]	∉ Oroville Dam
∉ Clay Pit State Vehicular Recreation Area (SVRA)[1]	∉ Oroville Wildlife Area
∉ Diversion Pool (Burma Road) DUA	∉ Rabe Road Shooting Range
∉ Feather River Fish Hatchery	∉ Riverbend Park[1]
∉ Lake Oroville Visitors Center	∉ Saddle Dam DUA
∉ Lakeland Boulevard DUA	
Boat Ramps and Day Use Areas (BRs and DUAs)	
∉ Afterbay Outlet BR	
∉ Bidwell Canyon BR/ DUA	
∉ Enterprise BR/ DUA	
∉ Lime Saddle BR/ DUA	
∉ Loafer Creek BR/ DUA	
∉ Monument Hill (Thermalito Afterbay) BR/ DUA	
∉ North Thermalito Forebay BR/ DUA	
∉ OWA unimproved BRs	
∉ South Thermalito Forebay BR/ DUA	
∉ Spillway BR/DUA	
∉ Wilbur Road (Thermalito Afterbay) BR	
Car-top Boat Ramps	
∉ Bald Canyon Access (Middle Fork Feather River)	
∉ Big Bend Access (North Fork Feather River)	
∉ Dark Canyon Car-top BR	
∉ Foreman Creek Car-top BR	
∉ Larkin Road (Thermalito Afterbay) Car-top BR	
∉ Nelson Bar Car-top BR	
∉ Stringtown Car-top BR	
∉ Vinton Gulch Car-top BR	
Developed Trails	
∉ Brad P. Freeman Trail	
∉ Dan Beebe Trail	

[1] *These facilities are located outside of the FERC Project Boundary but within the Study Area since they are within a ¼ -mile of the FERC Project boundary or have a clear project nexus.*

Figure 1.2-1. Project Area and Associated Recreation Sites.

[11 x 17 Insert]



Source: DWR GIS / EDAW 2003

1 0 1 2 3 4 5 6 Miles

Scale 1 : 142,560
1" = 2.25 miles

STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES

Oroville Facilities Relicensing
FERC Project No. 2100

Figure 1.2-1
(R-1)

Project Area and
Associated Recreation Sites

Prepared by: PJ -- EDAW, Inc. Date 9/24/03 P:\2000\0s016.gis\arcview\rec_acc.apr

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FERC Project No. 2100 encompasses 41,100 acres and includes Oroville Dam and Reservoir, three power plants (Hyatt Pumping-Generating Plant, Thermalito Diversion Dam Power Plant, and Thermalito Pumping-Generating Plant), Thermalito Diversion Dam, the Feather River Fish Hatchery and Fish Barrier Dam, Thermalito Power Canal, Oroville Wildlife Area (OWA), Thermalito Forebay and Forebay Dam, Thermalito Afterbay and Afterbay Dam, transmission lines, and a relatively large number of recreational facilities. An overview of these facilities is provided in Figure 1.2-1. Oroville Dam, along with two small saddle dams, impounds Lake Oroville, a 3.5-million-acre-foot (maf) capacity storage reservoir with a surface area of 15,810 acres at its maximum normal operating level of 900 feet above mean sea level (msl).

The hydroelectric facilities have a combined licensed generating capacity of approximately 762 megawatts (MW). The Hyatt Pumping-Generating Plant is the largest of the three power plants with a capacity of 645 MW. Water from the six-unit underground power plant (three conventional generating and three pumping-generating units) is discharged through two tunnels into the Feather River just downstream of Oroville Dam. The plant has a generating and pumping flow capacity of 16,950 cfs and 5,610 cfs, respectively. Other generation facilities include the 3-MW Thermalito Diversion Dam Power Plant and the 114-MW Thermalito Pumping-Generating Plant.

Thermalito Diversion Dam, four miles downstream of the Oroville Dam, creates a tail water pool for the Hyatt Pumping-Generating Plant and is used to divert water into the Thermalito Power Canal. Thermalito Diversion Dam Power Plant is a 3-MW power plant located on the left abutment of the Diversion Dam. The power plant releases a maximum of 615 cfs of water into the river.

The Power Canal is a 10,000-foot-long channel designed to convey generating flows of 16,900 cfs to the Thermalito Forebay and pump-back flows to the Hyatt Pumping-Generating Plant. Thermalito Forebay is an off-stream regulating reservoir for the 114-MW Thermalito Pumping-Generating Plant. The Thermalito Pumping-Generating Plant is designed to operate in tandem with the Hyatt Pumping-Generating Plant and has generating and pump-back flow capacities of 17,400 cfs and 9,120 cfs, respectively. When in generating mode, the Thermalito Pumping-Generating Plant discharges into Thermalito Afterbay, which is contained by a 42,000-foot-long earth-fill dam. The Afterbay is used to release water into the Feather River downstream of the Oroville Facilities, helps regulate the power system, provides storage for pump-back operations, provides recreational opportunities, and provides local irrigational water. Several local irrigation districts also receive Lake Oroville water via the Afterbay.

The Feather River Fish Barrier Dam is downstream of the Thermalito Diversion Dam and immediately upstream of the Feather River Fish Hatchery. The flow over the dam maintains fish habitat in the low-flow channel of the Feather River between the dam and the Afterbay outlet, and provides attraction flow for the hatchery. The hatchery is an anadramous fish hatchery intended to compensate for salmon and steelhead spawning

grounds made unreachable by construction of Oroville Dam. Hatchery facilities have a production capacity of 10 million fall-run salmon, 5 million spring-run salmon, and 450,000 steelhead annually (pers. comm., Anna Kastner 2003). However, diseases have reduced hatchery production in recent years.

The Oroville Facilities support a wide variety of recreational opportunities. They include boating (several types), fishing (several types), fully developed and primitive camping (including boat-in and floating sites), picnicking, swimming, horseback riding, hiking, off-road bicycle riding, wildlife watching, hunting, and visitor information sites with cultural and informational displays about the developed facilities and the natural environment. There are major recreation facilities at Loafer Creek, Bidwell Canyon, Spillway, Lime Saddle, and Thermalito Forebay. Lake Oroville has two full-service marinas, five car-top boat launch ramps, 10 floating campsites, and seven two-stalled floating toilets. There are also recreation facilities at the Lake Oroville Visitors Center, Thermalito Afterbay, and the OWA.

The OWA comprises approximately 11,000 acres west of Oroville that is managed for wildlife habitat and recreational activities. It includes the Thermalito Afterbay and surrounding lands (approximately 6,000 acres) along with 5,000 acres adjoining the Feather River. The 5,000-acre area is adjacent to or straddles 12 miles of the Feather River, and includes willow and cottonwood-lined ponds, islands, and channels. Recreation areas include dispersed recreation (hunting, fishing, and bird watching), plus recreation at developed sites, including Monument Hill DUA, model airplane grounds, and three boat launches on the Afterbay and two on the river, and two primitive camping areas. California Department of Fish and Game's (DFG) habitat enhancement program includes a wood duck nest-box program and dry land farming for nesting cover and improved wildlife forage. Limited gravel extraction also occurs in a few locations.

1.4 CURRENT OPERATIONAL CONSTRAINTS

Operation of the Oroville Facilities varies seasonally, weekly and hourly, depending on hydrology and the objectives DWR is trying to meet. Typically, releases to the Feather River are managed to conserve water while meeting a variety of water delivery requirements, including flow, temperature, fisheries, diversion and water quality. Lake Oroville stores winter and spring runoff for release to the Feather River as necessary for Project purposes. Meeting the water supply objectives of the SWP has always been the primary consideration for determining Oroville Facilities operation (within the regulatory constraints specified for flood control, in-stream fisheries, and downstream uses). Power production is scheduled within the boundaries specified by the water operations criteria noted above.

Annual operations planning is conducted for multi-year carryover storage. The current methodology is to retain half of the Lake Oroville storage above a specific level for subsequent years. Currently, that level has been established at 1,000,000 acre-feet

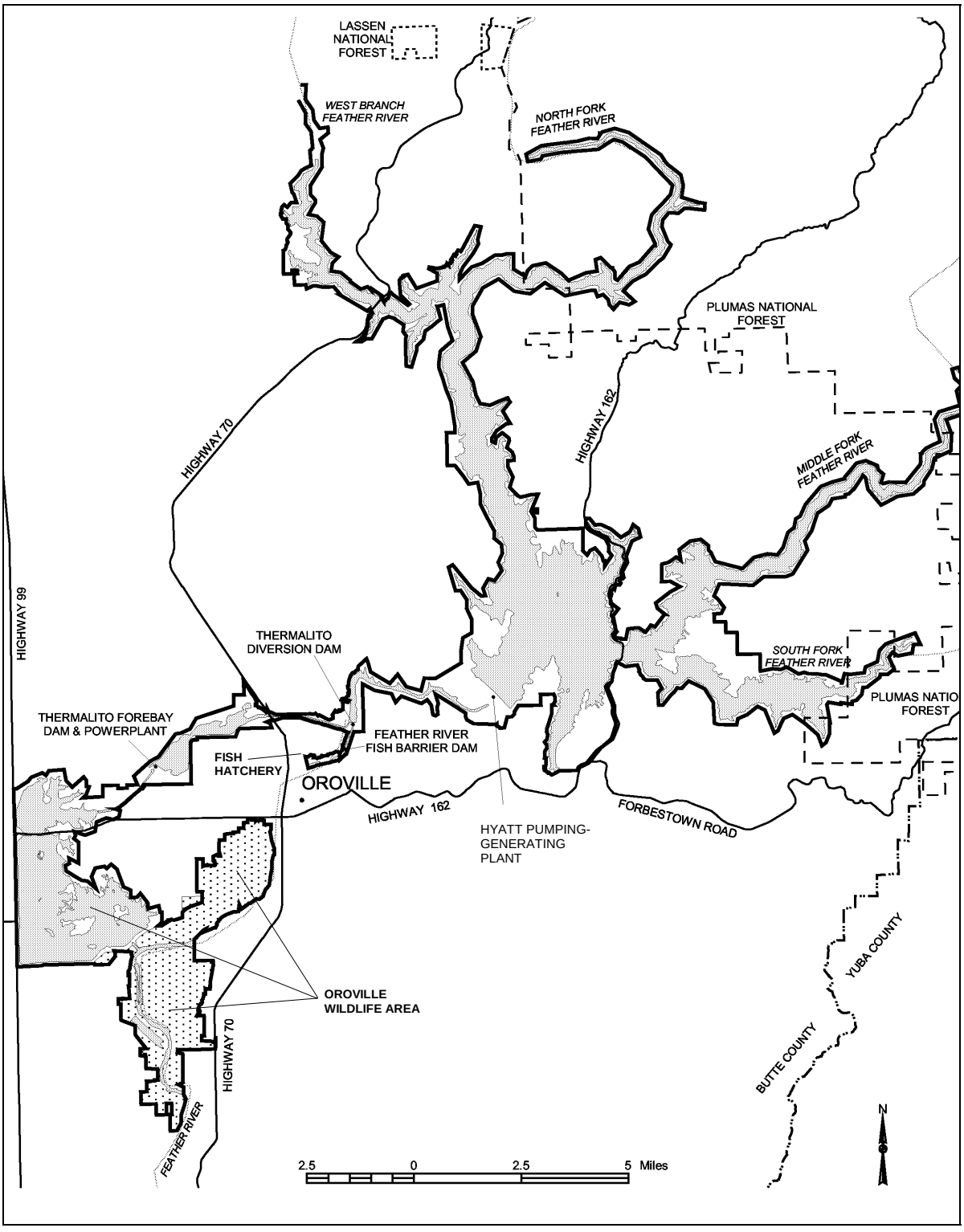

Figure 1.3-1. Oroville Facilities FERC Project Boundary.

(af); however, this does not limit drawdown of the reservoir below that level. If hydrology is drier or requirements greater than expected, additional water could be released from Lake Oroville. The operations plan is updated regularly to reflect forecast changes in hydrology and downstream operations. Typically, Lake Oroville is filled to its maximum operating level of 900 feet above msl in June and then lowered as necessary to meet downstream requirements, to a minimum level in December or January (approximately 700 msl). During drier years, the reservoir may be drawn down more and may not fill to desired levels the following spring. Project operations are directly constrained by downstream operational demands and flood management criteria as described below.

1.4.1 Downstream Operation

An August 1983 agreement between DWR and DFG entitled "Agreement Concerning the Operation of the Oroville Division of the State Water Project for Management of Fish & Wildlife," sets criteria and objectives for flow and temperatures in the low-flow channel and the reach of the Feather River between Thermalito Afterbay and Verona. This agreement (1) establishes minimum flows between Thermalito Afterbay Outlet and Verona which vary by water year type; (2) requires flow changes under 2,500 cfs to be reduced by no more than 200 cfs during any 24-hour period (except for flood management, failures, etc.); (3) requires flow stability during the peak of the fall-run Chinook salmon spawning season; and (4) sets an objective of suitable temperature conditions during the fall months for salmon and during the later spring/summer for shad and striped bass.

1.4.1.1 Instream Flow Requirements

The Oroville Facilities are operated to meet minimum flows in the Lower Feather River as established by the 1983 agreement (see above). The agreement specifies that Oroville Facilities release a minimum of 600 cfs into the Feather River from the Thermalito Diversion Dam for fisheries purposes. This is the total volume of flows from the Diversion Dam outlet, Diversion Dam power plant, and the Feather River Fish Hatchery pipeline.

Generally, the instream flow requirements below Thermalito Afterbay are 1,700 cfs from October through March, and 1,000 cfs from April through September. However, if runoff for the previous April through July period is less than 1,942,000 af (i.e., the 1911-1960 mean unimpaired runoff near Oroville), the minimum flow can be reduced to 1,200 cfs from October to February, and 1,000 cfs for March. A maximum flow of 2,500 cfs is maintained from October 15 through November 30 to prevent spawning in overbank areas that might become de-watered.

1.4.1.2 Temperature Requirements

The Diversion Pool provides the water supply for the Feather River Fish Hatchery. The hatchery temperature objectives are 52°F for September, 51°F for October and November, 55°F for December through March, 51°F for April through May 15, 55°F for last half of May, 56°F for June 1-15, 60°F for June 16 through August 15, and 58°F for August 16-31. In April through November, a temperature range of plus or minus 4°F is allowed for objectives.

There are several temperature objectives for the Feather River downstream of the Afterbay outlet. During the fall months, after September 15, the temperatures must be suitable for fall-run Chinook salmon. From May through August, the temperatures must be suitable for shad, striped bass, and other warmwater fish.

The National Marine Fisheries Service (NMFS) has also established an explicit criterion for steelhead trout and spring-run Chinook salmon, memorialized in a biological opinion on the effects of the Central Valley Project and SWP on Central Valley spring-run Chinook and steelhead. As a reasonable and prudent measure, DWR attempts to control water temperature at Feather River mile 61.6 (Robinson's Riffle in the low-flow channel) from June 1 through September 30. This measure attempts to maintain water temperatures less than or equal to 65°F on a daily average. The requirement is not intended to preclude pump-back operations at the Oroville Facilities needed to assist the State of California with supplying energy during periods when the California ISO anticipates a Stage 2 or higher alert.

The hatchery and river water temperature objectives sometimes conflict with temperatures desired by agricultural diverters. Under existing agreements, DWR provides water for the Feather River Service Area (FRSA) contractors. The contractors claim a need for warmer water during spring and summer for rice germination and growth (i.e., minimum 65°F from approximately April through mid-May, and minimum 59°F during the remainder of the growing season), though there is no explicit obligation for DWR to meet the rice water temperature goals. However, to the extent practical, DWR does use its operational flexibility to accommodate the FRSA contractor's temperature goals.

1.4.1.3 Water Diversions

Monthly irrigation diversions of up to 190,000 af (July 2002) are made from the Thermalito Complex during the May through August irrigation season. Total annual entitlement of the Butte and Sutter County agricultural users is approximately 1.0 maf. After meeting these local demands, flows into the lower Feather River (and outside of the Project 2100 boundary) continue into the Sacramento River and into the Sacramento-San Joaquin Delta. In the northwestern portion of the Delta, water is

pumped into the North Bay Aqueduct. In the south Delta, water is diverted into Clifton Court Forebay where the water is stored until it is pumped into the California Aqueduct.

1.4.1.4 Water Quality

Flows through the Delta are maintained to meet Bay-Delta water quality standards arising from DWR's water rights permits. These standards are designed to meet several water quality objectives such as salinity, Delta outflow, river flows, and export limits. The purpose of these objectives is to attain the highest reasonable water quality, considering all demands being made on the Bay-Delta waters. In particular, they protect a wide range of fish and wildlife including Chinook salmon, Delta smelt, striped bass, and the habitat of estuarine-dependent species.

1.4.2 Flood Management

The Oroville Facilities are an integral component of the flood management system for the Sacramento Valley. During the wintertime, the Oroville Facilities are operated under flood control requirements specified by the U.S. Army Corps of Engineers (USACE). Under these requirements, Lake Oroville is operated to maintain up to 750,000 af of storage space to allow for the capture of significant inflows. Flood control releases are based on the release schedule in the flood control diagram or the emergency spillway release diagram prepared by the USACE, whichever requires the greater release. Decisions regarding such releases are made in consultation with the USACE.

The flood control requirements are an example of multiple use of reservoir space. When flood management space is not required to accomplish flood management objectives, the reservoir space can be used for storing water. From October through March, the maximum allowable storage limit (point at which specific flood release would have to be made) varies from about 2.8 to 3.2 maf to ensure adequate space in Lake Oroville to handle flood flows. The actual encroachment demarcation is based on a wetness index, computed from accumulated basin precipitation. This allows higher levels in the reservoir when the prevailing hydrology is dry. When the wetness index is high in the basin (i.e., potential runoff from the watershed above Lake Oroville), required flood management space is at its greatest to provide the necessary flood protection. From April through June, the maximum allowable storage limit is increased as the flooding potential decreases, which allows capture of the higher spring flows for use later in the year. During September, the maximum allowable storage decreases again to prepare for the next flood season. During flood events, actual storage may encroach into the flood reservation zone to prevent or minimize downstream flooding along the Feather River.

2.0 NEED FOR STUDY

This study is needed to meet FERC's direction to ensure adequate public access within the Project study area. Specifically, FERC guidelines state that the licensee shall "make provisions for adequate public access to such project facilities and waters" (Part 2, Subchapter A, Chapter One, Section 2.7 of 18 CFR). The study addresses the adequacy of Project recreation facilities, opportunities, and vehicular access to accommodate current recreation use and future demand.

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3.0 STUDY OBJECTIVE(S)

The main objective of this study is to identify the opportunities for and constraints upon public and private vehicular access to study area land and water resources. This study focused solely on roads within the study area that lead to existing or potential recreation sites. Current access conditions and the effect of future development and Project operations on public access are also discussed.

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4.0 METHODOLOGY

4.1 STUDY DESIGN

The roads constituting the main vehicular route to each recreation site were identified utilizing US Geological Survey (USGS) maps, DWR maps, the Northern California Atlas and Gazetteer, the Plumas National Forest Map, and Mapblast (www.mapblast.com). Roads leading to shoreline on the eastern side of Lake Oroville and the Feather River branches were also selected for inclusion in the study.

4.1.1 Road Type

The type of road (paved, unpaved, closed) and the condition (poor or good to adequate) were documented on maps by field personnel as outlined in the study plan. The road type categories, which include condition, are listed in Table 4.1-1. Identification of the type and condition of roads shows where there are constraints and potential opportunities for improving or creating access.

Table 4.1-1. Road types within the study area.

Road Type
Level 1 (L1) – Roads closed to general vehicular traffic.
Level 2 (L2) – Unpaved roads open for use by high clearance, four-wheel drive vehicles only.
Level 3 (L3) – Unpaved roads in poor condition.
Level 4 (L4) – Unpaved roads in good to adequate condition.
Level 5 (L5) – Paved roads.

The road types were transferred from field maps to a geographic information system (GIS) mapping database. The detail maps in Section 5.0 were generated from the GIS database. Figures 4.1-1 through 4.1-5 show examples of the five road types.

For the purposes of this study, the main State Routes (such as SR 99, SR 70, and SR 162) are all L5 (paved) major roads and are not the focus of this study. These roads are mentioned within specific site descriptions as geographic or access route references rather than for the purpose of focusing on their condition. They are also discussed in Section 5.4.1 in the context of planned future projects.

Figure 4.1-1. Level 1: Closed Road Example.

Figure 4.1-2. Level 2: Four-Wheel Drive Road Example.

Figure 4.1-3. Level 3: Poor Quality Road Example.

Figure 4.1-4. Level 4: Unpaved Road Example.

Figure 4.1-5. Level 5: Paved Road Example.

Roads were also divided by their system characteristics. Four divisions were used: principal arterial, minor arterial, collector road and local roads. Principal arterials are roadways that move traffic around the state or between states. Minor arterials link cities and larger towns. Collector roads serve travel which is primarily inside the county. Local roads provide access over relatively short distances. These divisions were used in this report to clarify the transportation context for analyzing roads (Butte County 1984).

4.1.2 Planned Future Road Projects

This study also examines future development effects on public access within the study area throughout the next license period (FERC Project 2100). The following agencies and departments were contacted to obtain information on planned future recreation developments, or road installations or modifications that may affect Project area facilities:

- California Department of Transportation (Caltrans)
- Butte County Public Works Department
- City of Oroville Public Works Department
- United States Forest Service (USFS)
- Bureau of Land Management (BLM)
- California Department of Parks and Recreation (DPR)
- California Department of Boating and Waterways (DBW)
- California Department of Fish and Game (DFG)
- California Department of Water Resources (DWR)

4.1.3 Recreation Use Levels

Recreation Areas were divided into high, average and low use in order to identify which routes are receiving the most vehicular travel. If a site with higher use has a constraint to vehicular access, more visitors would be affected than if a site with lower visitation had a constraint. High use areas are those with an average annual visitation over 50,000 from 1974 to 2001. Average use areas are those with an approximate average annual visitation of 10,000 to 50,000 during the same time period. Low use areas are those with an approximate average annual visitation of less than 10,000, also within the same 27-year period. Attendance data have not been gathered for all the sites; however, field staff have noted which sites receive high, average, and low use based on observations and communication with local residents and DWR and DPR staff.

4.1.4 Reservoir Levels

For the purposes of this report, high reservoir level is defined as being above 850 feet msl. (Full operating pool in 900 feet msl.) Medium reservoir levels are those from 800 to 850 feet msl. Low reservoir levels are those that fall below 800 feet msl. These divisions are based on historic pool levels (DWR CDEC 2003).

5.0 STUDY RESULTS

This study documents vehicular access in its current condition and determines whether there are barriers to recreation visits within the study area. Where barriers are identified, recommendations are made for mitigating or removing them. Additionally, the study addresses access needs during the next license period to facilitate increased demand for recreation activities.

The Study Results section summarizes conditions on roads of various types that lead to existing recreation areas. Conditions on several roads that are used for dispersed recreation, or could be used if new sites were developed, are also presented. This section includes a discussion of constraints that could inhibit vehicular access in and near the Oroville Facilities and the potential mitigation and enhancement measures (Resource Action) that could be taken to amend those constraints. Section 5.2 describes the site features and amenities for each recreation site as well as the levels of visitation, routes to the site, and road conditions.

5.1 VEHICULAR SETTING

The Lake Oroville State Recreation Area (LOSRA) and the lands within the Project boundary are generally located in a rural setting, approximately 3 hours by car from the San Francisco Bay area and 1.5 hours from the City of Sacramento. Nearby urban areas include Chico and the City of Oroville. Traffic on the road and highway network in and near the Oroville Facilities is normally free flowing with little congestion. Roads and highways are in generally good to adequate condition. Butte County is responsible for the majority of roads in the area immediately surrounding the LOSRA. DPR is responsible for roads within the LOSRA. DWR is responsible for the roads within the Project boundary that are not encompassed within the LOSRA.

The highest use areas include Bidwell Canyon, Lime Saddle, North Thermalito Forebay, Loafer Creek, Lake Oroville Visitors Center, Oroville Dam, and Spillway DUA (DWR 2001). The majority of heavy traffic is associated with recreational use of these areas. High use affects roads over time and these areas require more road maintenance than less traveled roads. Many of the recreational visitors' cars and trucks tow boat trailers, which can affect traffic conditions. Most of the roads that lead to the high use sites pass through residential neighborhoods and commercial areas. Figure 1.2-1 shows the location of recreation sites in relationship to adjacent State Highways. Figure 5.1-1 shows the basic layout of roads and highways. Figures 5.2-1 through 5.2-3 show the location and type of roads traveled to reach recreation sites or that lead to potential shoreline access.

5.2 RECREATION SITE ACCESS

Each recreation site has amenities that attract users, which affects traffic and vehicular access. Shoreline access is one of the main recreation attractions to the Oroville Facilities. Reservoir levels determine whether shoreline sites are attractive for boating, swimming, or boat-in camping. This in turn affects how many users drive to a particular site. Parking availability and other potential constraints, such as lack of signage, can affect user access. Table 5.2-1 summarizes parking, activity, use numbers, and type of shoreline access, if known, for each recreation site in the study area. Table 5.2-2 outlines the roads and highways to each recreation site. The roads are categorized as local, collector, minor arterial, or principal arterial. For a description of each category, see Section 4.1.1. Parking and entry are characterized as either paved or unpaved.

Within the study area, there are many recreation facilities with roads leading to them that may have a combination of facility types such as a campground, a day use site, and a boat launch ramp, or another combination of facilities. These combination sites are grouped together in this section.

5.2.1 High Use Areas

"High use" areas are those receiving an average of over 50,000 recreators annually. Those areas with shoreline access for boating draw the most visitors. Three day use areas are included in this category. Vehicular access descriptions regarding specific sites are summarized below. None of the high use areas appear to have any constraints restricting or affecting public access except for the OWA. All of the recreation areas are located on Figure 5.1-1 as well as on Figures 5.2-1 through 5.2-3. The key for Figures 5.2-1 through 5.2-3 is also located on Figure 5.1-1.

5.2.1.1 Bidwell Canyon Campground, Group Campground, Boat Ramp, and Day Use Area

Bidwell Canyon is one of the most popular recreation areas at Lake Oroville with reported visitation ranging between 82,000 and 199,000 annually over the last 27 years. The DUA is located at the eastern edge of the upper parking lot adjacent to the boat launch ramps. The boat ramps are paved, in good condition, and available at various reservoir levels. A new gravel ramp is available at very low reservoir levels (approximately 700 feet msl). Shoreline access provides users with opportunities to fish and swim in addition to boating. Picnic benches are located along the DUA trail. The parking lots at Bidwell Canyon are paved, with a total of 451 spaces. The parking lot fills up several times per year, usually on some of the dates within holiday weekends.

Figure 5.1-1. Recreation Site Use Levels.

[11 x 17 color insert]

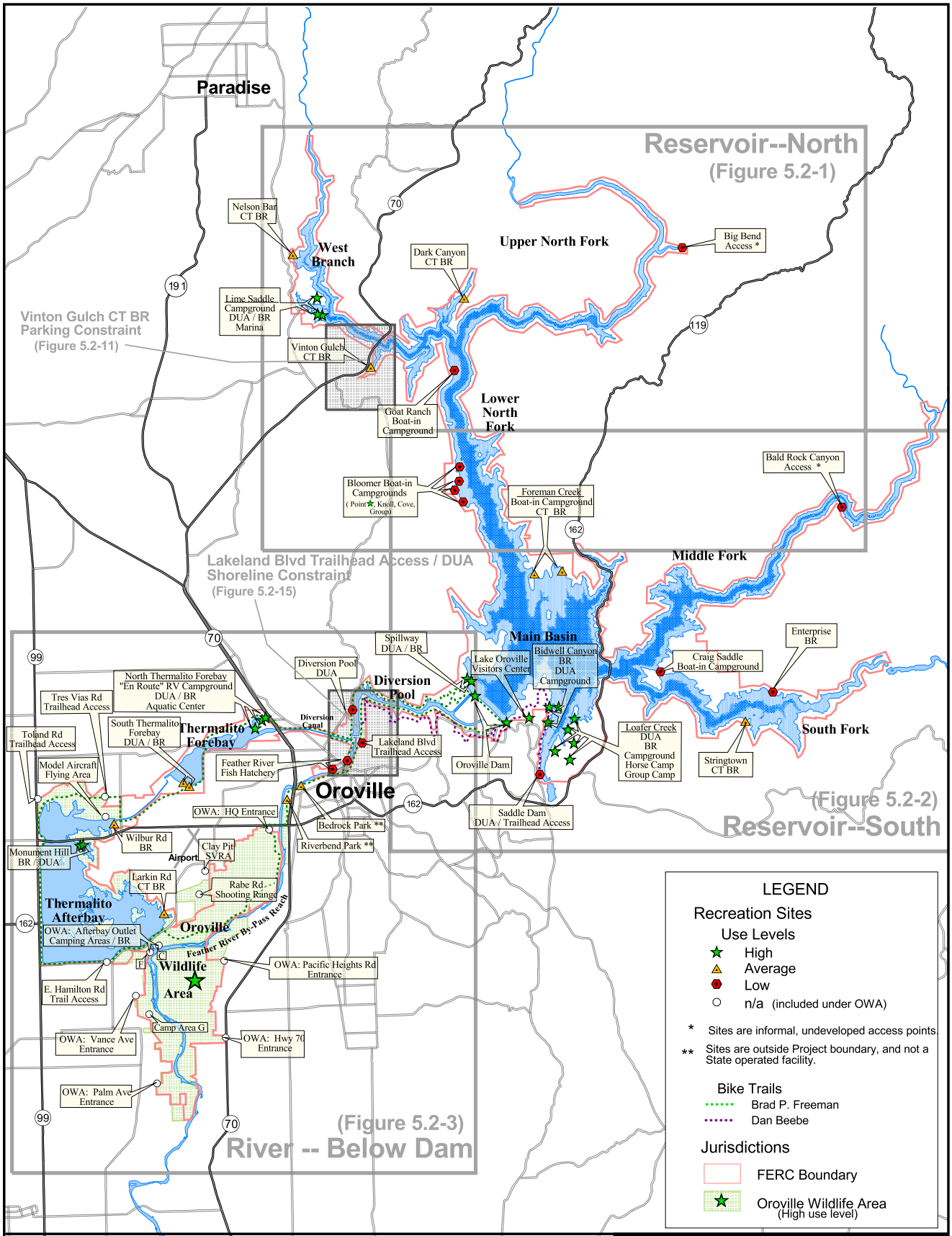

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Figure 5.1-1
(R-1)

Recreation Site Use Levels

Prepared by: PJ -- EDAW, Inc. Date 9/24/03 P:\2000\0s016.gis\arcview\rec_acc.apr

Back of Figure 5.1-1

Figure 5.2-1. Access Road Conditions: Reservoir – North.

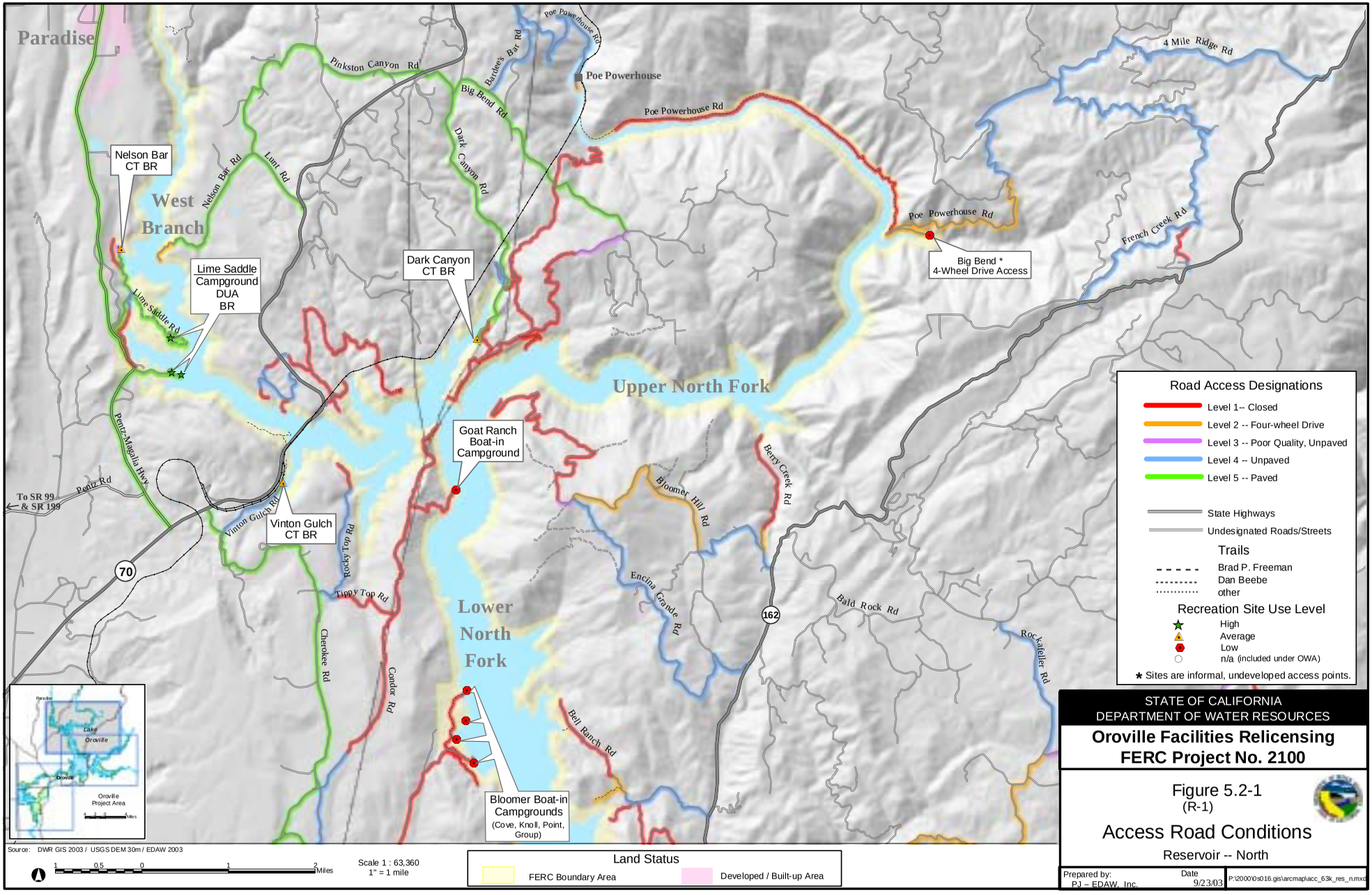
Paradise
Pinkston Canyon Rd
Poe Powerhouse Rd
Bardee's Bar Rd
Poe Powerhouse
Big Bend Rd
4 Mile Ridge Rd
Nelson Bar CT BR
Nelson Bar Rd
Lunt Rd
Dark Canyon Rd
West Branch
Poe Powerhouse Rd
French Creek Rd
Big Bend *
4-Wheel Drive Access
Lime Saddle Campground DUA BR
Dark Canyon CT BR
Lime Saddle Rd
Upper North Fork
Goat Ranch Boat-in Campground
Penz-Magalia Hwy
To SR 99 & SR 199
Penz Rd
Vinton Gulch Rd
Vinton Gulch CT BR
Rocky Top Rd
Bloomer Hill Rd
Berry Creek Rd
70
Tippy Top Rd
Encina Grande Rd
162
Bald Rock Rd
Lower North Fork
Cherokee Rd
Condor Rd
Rockateller Rd
Bell Ranch Rd
Bloomer Boat-in Campgrounds (Cove, Knoll, Point, Group)
Lake Oroville
Oroville
Oroville Project Area
Source: DWR GIS 2003 / USGS DEM 30m / EDAW 2003
Miles
Scale 1 : 63,360
1" = 1 mile
Land Status
FERC Boundary Area
Developed / Built-up Area
Road Access Designations
Level 1-- Closed
Level 2 -- Four-wheel Drive
Level 3 -- Poor Quality, Unpaved
Level 4 -- Unpaved
Level 5 -- Paved
State Highways
Undesignated Roads/Streets
Trails
Brad P. Freeman
Dan Beebe
other
Recreation Site Use Level
High
Average
Low
n/a (included under OWA)
★ Sites are informal, undeveloped access points.
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Figure 5.2-1
(R-1)
Access Road Conditions
Reservoir -- North
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PJ – EDAW, Inc.
Date
9/23/03
P:\2000\0s016.gis\arcmap\acc_63k_res_n.mxd

Back of Figure 5.2-1

Figure 5.2-2. Access Road Conditions: Reservoir – South.

[11 x 17 color insert]

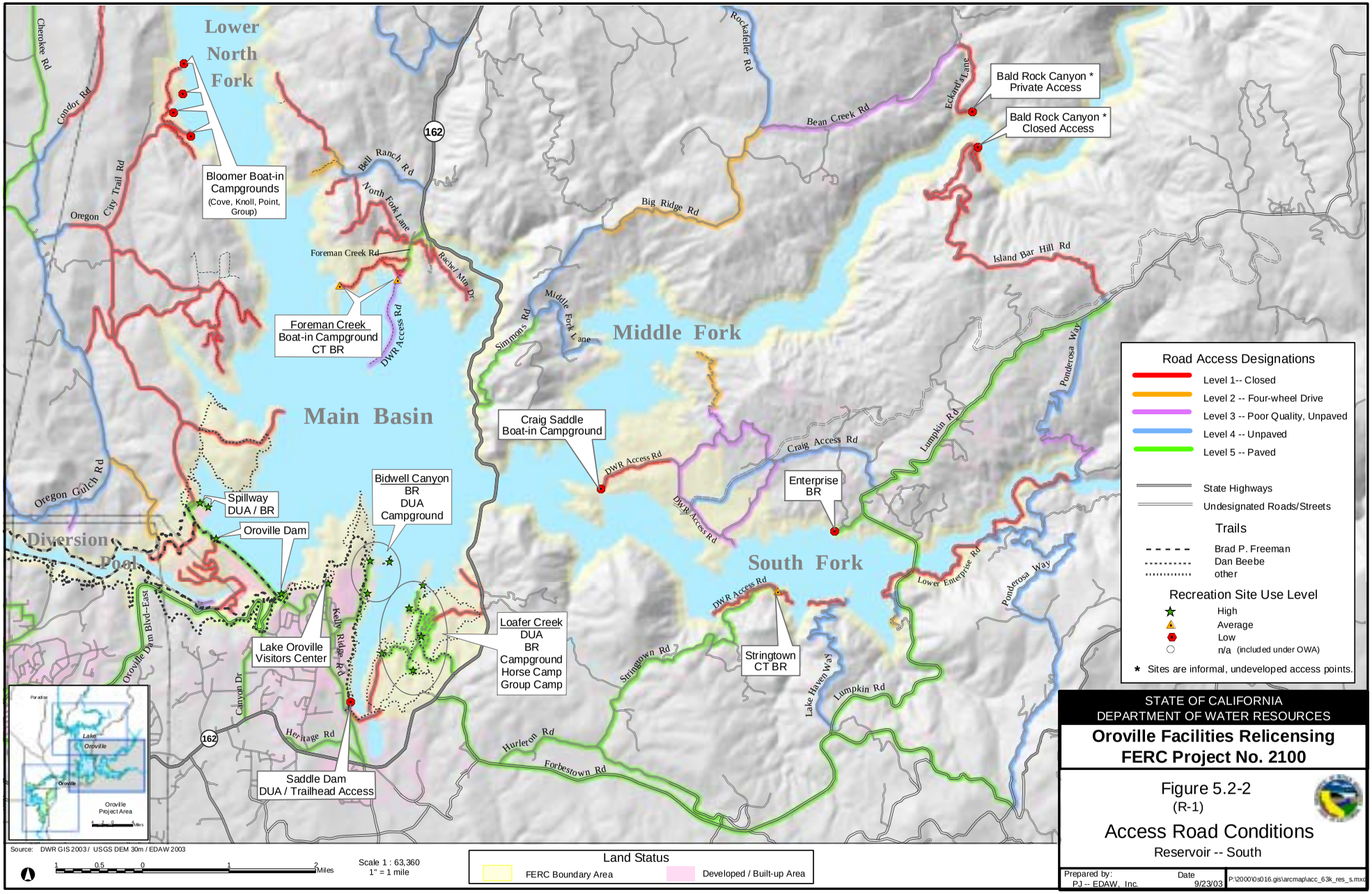

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Figure 5.2-2
(R-1)

Access Road Conditions

Reservoir -- South

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Date 9/23/03
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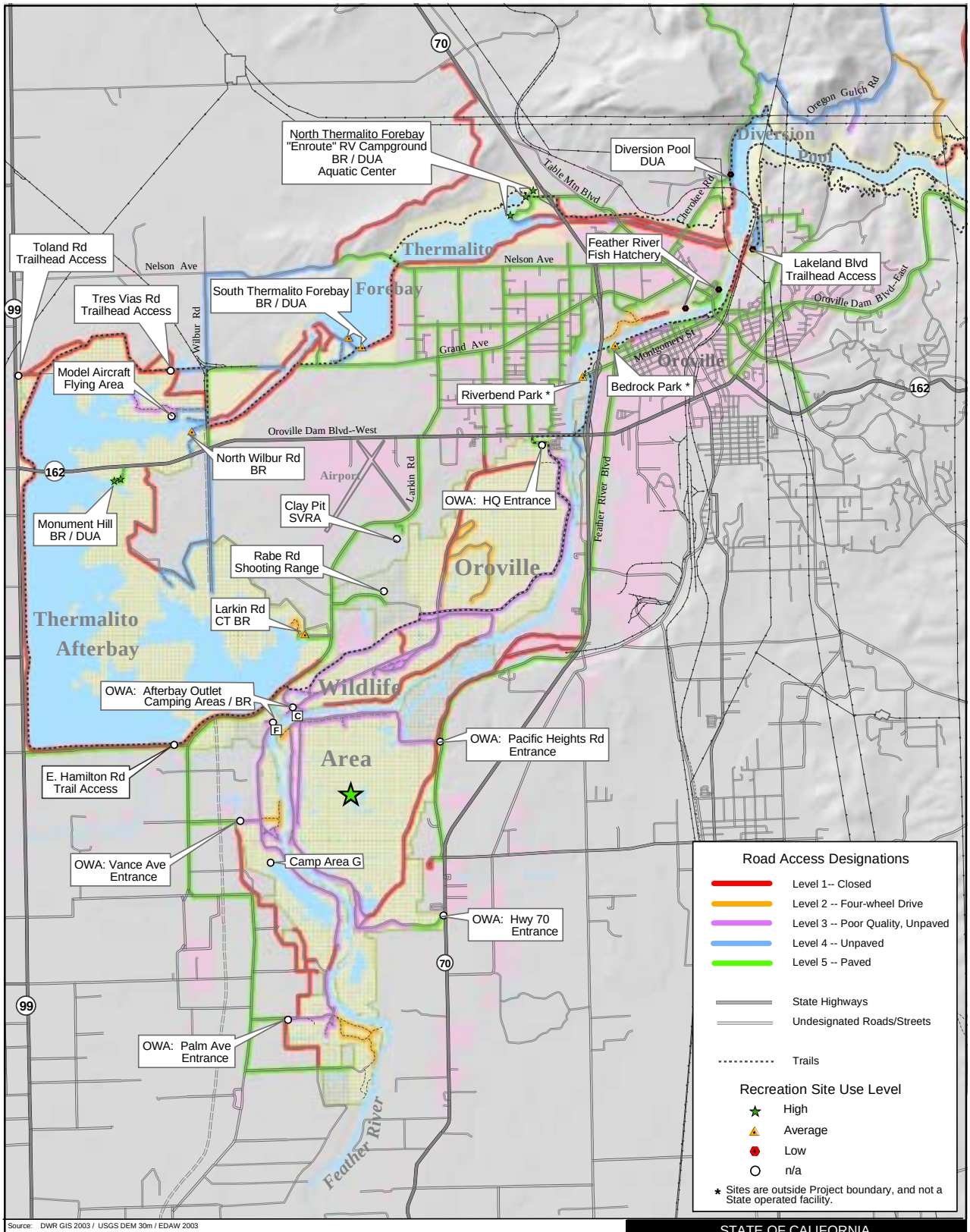
Back of Figure 5.2-2

Figure 5.2-3. Access Road Conditions: River Below Dam.



Source: DWR GIS 2003 / USGS DEM 30m / EDAW 2003

Land Status
- FERC Boundary Area
- Developed / Built-up Area
- Oroville Wildlife Area (High use level)

Scale 1 : 63,360
1" = 1 mile

1 0.5 0 1 2 Miles

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Figure 5.2-3
(R-1)

Access Road Conditions

River -- Below Dam

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Date 9/23/03
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Back of Figure 5.2-3

Table 5.2-1. Features.

Recreation Site	Number of Parking Spaces	Activity	Average Annual User Numbers from 1974 to 2001	Shoreline Access Activity Type	Water Levels When Shoreline Access is Available[1]	Map No.
High Use Areas (above 50,000 average annual visitors)						
Mixed Use Activity Areas						
Bidwell Canyon	451	Camping, Boating, Day Use	120,149	Boating & fishing	All (fishing at low levels only)	5.2-2
Lime Saddle	334	Camping, Boating, Day Use	73,468	Boating	All	5.2-1
Loafer Creek	429	Camping, Boating, Day Use	72,823	Boating, fishing & swimming	High	5.2-3
North Thermalito Forebay Recreation Area	192 approx	Day Use/RV Camping	66,182	Swimming, fishing & nonmotorized boating	All	5.2-3
Oroville Wildlife Area (OWA)	40 to 50 approx	Camping, Day Use	Approx 137,000[2]	None	NA[4]	5.2-2
Day Use Areas						
Lake Oroville Visitors Center	107	Day Use	121,074	None	NA	5.2-2
Monument Hill (Thermalito Afterbay) BR/DUA	70 approx	Day Use, Boating	Approx 115,000[3]	Boating, fishing & swimming	NA[4]	5.2-3
Oroville Dam	20 approx	Day Use	>314,000[2]	Fishing	All	5.2-2
Spillway DUA	1,095	Day Use	96,717	Boating & fishing	All	5.2-2
Camping						
OWA – Afterbay Outlet Camping Areas C & F	-	Camping	-	Fishing	NA[4]	5.2-3
OWA – Afterbay Outlet Camping Areas G, One-mile Pond	-	Camping	-	Fishing	NA[4]	5.2-3
Average Use Area (from 10,000 to 50,000 average annual visitors)						
Day Use Areas						
Bedrock Park	77	Day Use	Unknown	Swimming & fishing	NA[4]	5.2-3
Riverbend Park	80 approx	Day Use	Unknown	Fishing	NA[4]	5.2-3
Boat Ramps/Day Use Areas						
South Thermalito Forebay BR/DUA	30 to 50	Day Use, Boating	13,254	Boating, fishing & swimming	NA[4]	5.2-3
Car-top BRs						
Car-top BRs Totals	116 to 194[6]	Car-top Boating	22,351[5] (127,000[2])	Boating	-	5.2-3
Dark Canyon Car-top BR	15 to 30	Car-top Boating	26,189[2]	Boating	Medium	5.2-1

Table 5.2-1. Features.

Recreation Site	Number of Parking Spaces	Activity	Average Annual User Numbers from 1974 to 2001	Shoreline Access Activity Type	Water Levels When Shoreline Access is Available[1]	Map No.
Foreman Creek Car-top BR	15 to 30 at low levels, approx 7 at high levels	Car-top Boating	29,115[2]	Boating, fishing & swimming	All	5.2-2
Nelson Bar Car-top BR	30 to 50	Car-top Boating	47,014[2]	Boating	High	5.2-1
Stringtown Car-top BR	10	Car-top Boating	12,358[2]	Boating, fishing & swimming	All	5.2-2
Vinton Gulch Car-top BR	10	Car-top Boating	12,500[2]	Boating & fishing	High	5.2-1
Wilbur Road (Thermalito Afterbay) BR/DUA	14	Day Use, Boating	16,110[2]	Boating (w/ dock)	NA[4]	5.2-3
Larkin Road (Thermalito Afterbay) Car-top BR	30 to 50	Boating	31,867[2]	Boating	NA[4]	5.2-3
Low Use (under 10,000 average annual visitors)						
Boat-in-Camping	NA	Boat-in-camping	5,192	Boating	High	
Bloomer BICs	NA	Boat-in-camping	-	Boating	High	5.2-1
Craig Saddle BIC	NA	Boat-in-camping	7,786	Boating	High	5.2-2
Foreman Creek BIC	NA	Boat-in-camping	-	Boating	High	5.2-2
Goat Ranch BIC	NA	Boat-in-camping	-	Boating	High	5.2-1
Car-top Boating Access						
Big Bend Access	Undeveloped	Car-top Boating	-	Boating	High	5.2-1
Bald Rock Canyon Access	Undeveloped	Car-top Boating	-	Boating	High & Medium	5.2-2
Day Use Areas/Boat Ramps						
Afterbay Outlet BR	5 approx	Boating	Unknown	Boating	NA[4]	5.2-3
Clay Pit State Vehicular Recreation Area (SVRA)	20 approx	Day Use	5,191	None	NA	5.2-3
Diversion Pool DUA (Burma Road)	Road Parking	Day Use	9,807	Car-top boating & swimming	NA[4]	5.2-3
Enterprise BR/DUA	40	Boating	8,278	Fishing & swimming	High	5.2-2
Feather River Fish Hatchery	100 approx	Day Use	Unknown	None	NA	5.2-3
Lakeland Boulevard Trailhead Access	Undesignated Parking	Day Use	Unknown	None	NA	5.2-3
Model Aircraft Flying Area	20 approx	Day Use	Unknown	Undesignated	NA[4]	5.2-3
OWA unimproved BRs	Various locations	Boating	Unknown	Boating	NA[4]	5.2-3
Rabe Road Shooting Range	20 approx	Day Use	Unknown	None	NA	5.2-3
Saddle Dam DUA	40	Day Use	Unknown	None	NA	5.2-2
Developed Trails						

Table 5.2-1. Features.

Recreation Site	Number of Parking Spaces	Activity	Average Annual User Numbers from 1974 to 2001	Shoreline Access Activity Type	Water Levels When Shoreline Access is Available[1]	Map No.
Brad P. Freeman Trail	Various locations	Day Use	Unknown	Various locations	NA	5.2-3 5.2-2
Dan Beebe Trail	Various locations	Day Use	Unknown	Various locations	NA	5.2-3 5.2-2

[1] *High = > 850 feet msl; Medium = 800 to 850 feet msl; Low = < 800 feet.*
[2] *Based on traffic counts from 2000.*
[3] *Based on traffic counts from 1999.*
[4] *Not applicable, water levels below the dam do not generally vary in a way that affects shoreline activities.*
[5] *While as a group the Car-top BRs fall into the average range, individually each Car-top BR receives a low number of visitors.*
[6] *Total varies based on Lake Oroville water levels with capacity expanding as lake elevation decreases.*
Source: DPR.

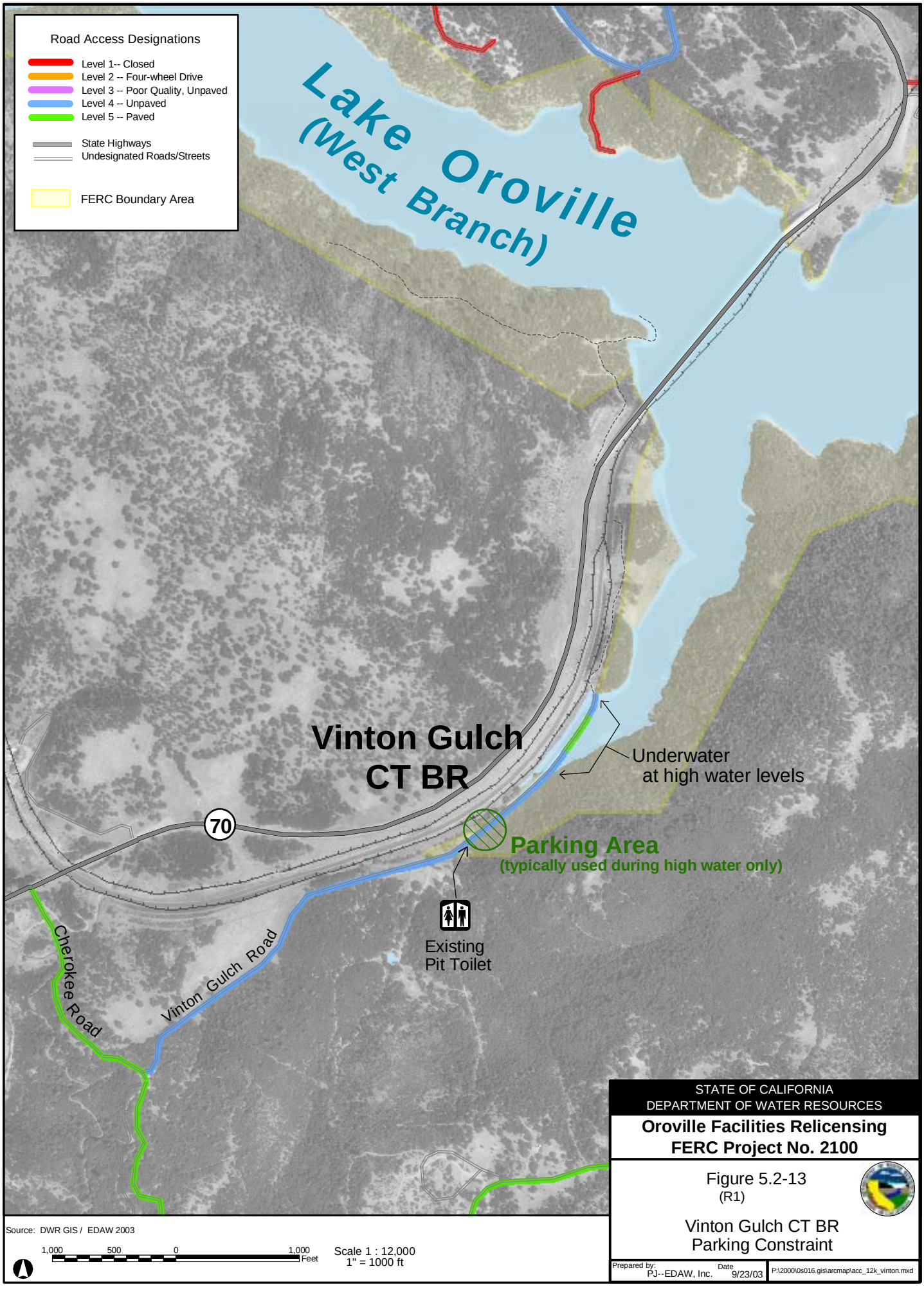

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Figure 5.2-13
(R1)

Vinton Gulch CT BR
Parking Constraint

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Table 5.2-2. Vehicular access to recreation sites summary[1].

Recreation Site	Parking	Entry	Local Street	Collector	Minor Arterial	Principal Arterial
High Use Areas						
Mixed Use Activity Area						
Bidwell Canyon	Paved	Paved	Bidwell Canyon Road (L5) to Arroyo Drive (L5)	Kelly Ridge Road (L5)	None	SR 162 (L5)
Lime Saddle	Paved	Paved	Lime Saddle Road (L5)	Pentz Magalia Highway (L5)	Durham-Pentz Road (L5)	SR 191 (L5) or off SR 70 to Pentz Rd.
Loafer Creek	Paved	Paved	Loafer Creek Road (L5)	None	None	Oroville Quincy Highway/SR 162 (L5)
North Thermalito Forebay Recreation Area	Paved	Paved	Garden Drive (L5)	None	None	SR 70 (L5)
Day Use Areas						
Lake Oroville Visitors Center/Kelly Ridge DUA	Paved	Paved	None	Kelly Ridge Road (L5)	None	SR 162 (L5)
Monument Hill (Thermalito Afterbay) BR/DUA	Paved	Paved	None	None	None	SR 162 (L5)
Oroville Dam	Paved	Paved	Oroville Dam Boulevard (L5)/ Royal Oaks Drive (L5)	Canyon Drive (L5)	None	SR 162 (L5)
			None	Canyon Drive (L5)	None	SR 162 (L5)
Spillway DUA	Paved	Paved	Oroville Dam Road	Canyon Drive	None	SR 162 (L5)
Camping						
OWA – Afterbay Outlet Camping Areas C & F	Unpaved	Unpaved	None	None	Larkin Road (L5)	SR 162
OWA – Afterbay Outlet Camping Areas G, One-mile Pond	Unpaved	Unpaved	Vance Avenue (L5)	None	Larkin Road (L5)	SR 162
Average Use Areas						
Day Use Areas						
Bedrock Park	Paved	Paved	Feather River Boulevard (L5)	Montgomery Street (L5)	Oroville Dam Boulevard (L5)	SR 70 (L5)
Riverbend Park [2]	Unpaved	Unpaved	Feather River Boulevard (L5)	Montgomery Street (L5)	Oroville Dam Boulevard (L5)	SR 70 (L5)
Boat Ramps/Day Use Areas						
South Thermalito Forebay BR/DUA	Unpaved	Unpaved	None	None	Grand Avenue (L5)	SR 70 (L5)
Car-top BRs						
Dark Canyon Car-top BR	Unpaved	Paved	Dark Canyon Road (L5)	Big Bend Road (L5)	None	SR 70 (L5)

Table 5.2-2. Vehicular access to recreation sites summary[1].

Recreation Site	Parking	Entry	Local Street	Collector	Minor Arterial	Principal Arterial
Foreman Creek Car-top BR	Unpaved	Paved to gate, beyond gate, unpaved	Foreman Creek Road (L5)	None	None	Oroville Quincy Highway, SR 162 (L5)
Nelson Bar Car-top BR	Unpaved	Paved	Lime Saddle Road (L5)	Pentz Road (L5) or Pentz Magalia Hwy.	Durham – Pentz from SR 191	SR 191 (L5) or SR 70
Stringtown Car-top BR	Paved	Paved	Stringtown Road (L5)	Hurleton Road (L5)	Forbestown Road (L5)	SR 162 (L5)
Vinton Gulch Car-top BR	Unpaved	Unpaved	Vinton Gulch Road (L4)	None	Cherokee Road (L5)	SR 70 (L5)
Wilbur Road (Thermalito Afterbay) BR/DUA	Unpaved	Unpaved	Entrance road (L4)	Wilbur Road (north) (L5)	None	SR 162 (L5)
Larkin Road (Thermalito Afterbay) Car-top BR	Paved	Paved	None	East Hamilton Road (L5)	None	SR 99
			None	None	Larkin Road (L5)	SR 162 (L5)
Low Use Areas						
Boat-in-Camping						
Bloomer BIC Sites	Unknown	Unknown	Oregon City Trail road(L4)	Oregon Gulch Road	Cherokee Road (L5)	SR 70 (L5)
			None	None	Cherokee Road (L5)	SR 70 (L5)
	-	Boat	Boat-in	-	-	-
Craig Saddle BIC	-	Unpaved	DWR Access Road (L4) To Craig Access Road (L4)	Lumpkin Road	Forbestown Road (L5)	SR 162 (L5)
Foreman Creek BIC	-	Boat	Boat-in	-	-	-
	Unpaved	Unpaved	DWR access road (L2 & L3) to Foreman Creek Road (L4 & L5)	None	None	SR 162 (L5)
Goat Ranch BIC	Unpaved	Unpaved	Condor Road	None	Cherokee Road (L5)	SR 70 (L5)
Car-top Boating Access						
Big Bend Access[3]	Unpaved	Unpaved	Poe Powerhouse Road (L2)	French Creek Road (L4)	None	SR 162 (L5)
Bald Rock Canyon Access[3]	Unpaved	Unpaved	Eckards Lane (L1) connects to Bean Creek Road (L3) to	Bald Rock Road (L4 & L5)	None	SR 162
			Island Bar Hill Road (L1) or USFS Road 20N59 (L1)	Lumpkin Road (L5)	Forbestown Road (L5)	SR 162 (L5)
Day Use Areas/Boat Ramps						
Afterbay Outlet BR	Unpaved	Unpaved	None	None	Larkin Road (L5)	SR 162
Clay Pit State Vehicular Recreation Area (SVRA)	Paved	Unpaved	None	None	Larkin Road (L5)	SR 162
Diversion Pool DUA (Burma Road)	Unpaved	Unpaved	Burma Road (L4)	None	Cherokee Road (L5)	SR 70 (L5)
Enterprise BR/DUA	Paved	Paved	Enterprise Road (L5)	Lumpkin Road (L5)	Forbestown Road (L5)	SR 162 (L5)

Table 5.2-2. Vehicular access to recreation sites summary[1].

Recreation Site	Parking	Entry	Local Street	Collector	Minor Arterial	Principal Arterial
Feather River Fish Hatchery	Paved	Paved	None	None	Nelson Avenue (L5) to Table Mountain Boulevard (L5)	SR 70 (L5)
Lakeland Boulevard DUA	Unpaved	Unpaved	Lakeland Boulevard to Lausen Street to Fernwood Street to Colina Way (all L5)	Long Bar Road (L5) to Montgomery Street (L5)	Oroville Dam Boulevard (L5)	SR 70 (L5)
Rabe Road Shooting Range	Unpaved	Paved	Rabe Road (L5)	None	Larkin Road (L5)	SR 162 (L5)
Model Aircraft Flying Area	Unpaved	Unpaved	None	Wilbur Road (north) (L5)	None	SR 162 (L5)
OWA unimproved BRs	Unpaved	Unpaved	Various OWA entrances	Various	Larkin Road (L5)	SR 162
Saddle Dam DUA	Unpaved	Unpaved	None	Kelly Ridge Road (L5)	None	SR 162 (L5)

[1] *See detail maps.*
[2] *For all other sites on the table, travel from a site would flow from local street to collector to minor arterial to principal arterial. At Riverbend Park, traffic leaving the site would typically flow from Montgomery Street to Feather River Boulevard to Oroville Dam Boulevard to SR 70.*
[3] *These access sites are not provided by any CA State department.*

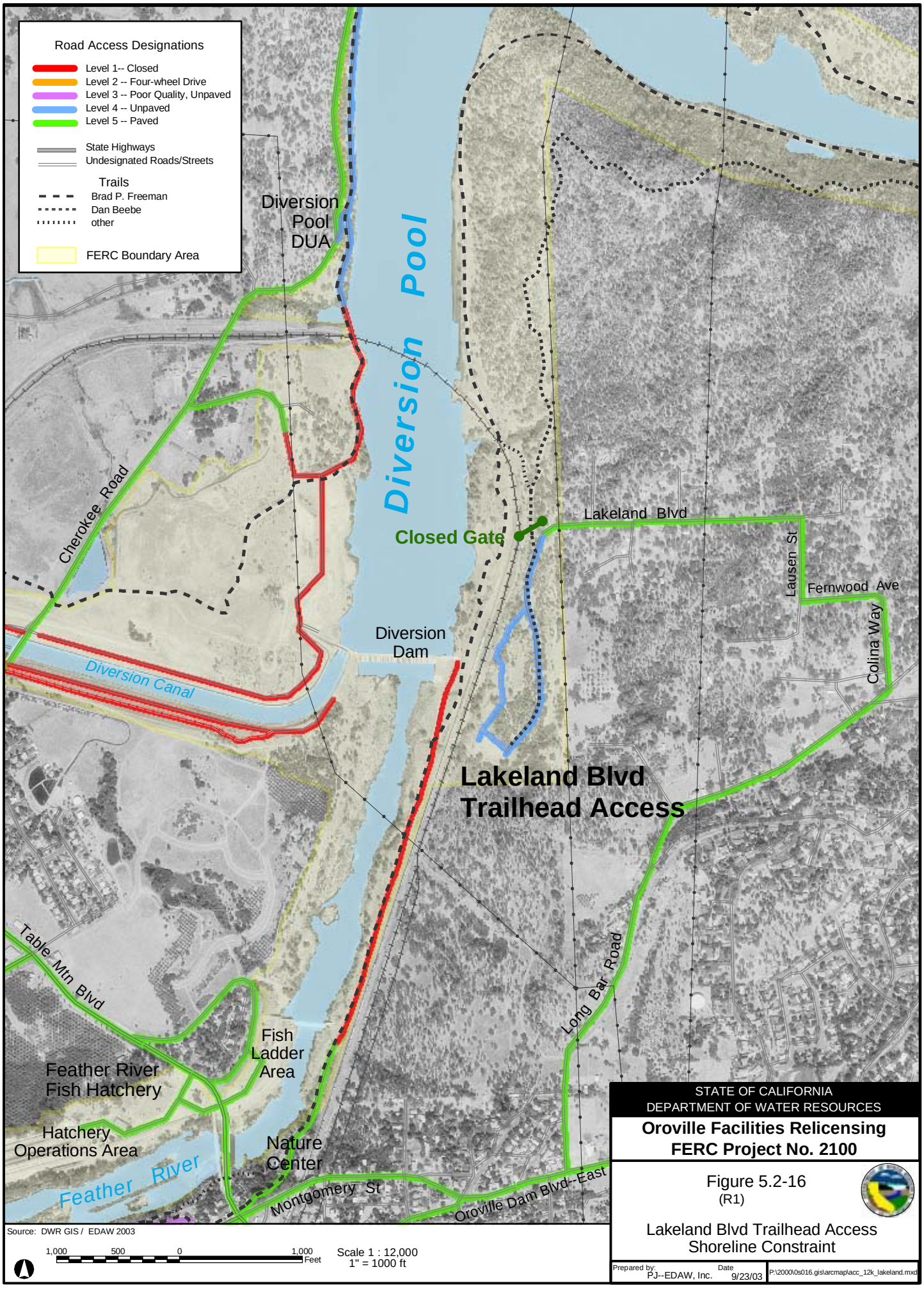
Road Access Designations
Level 1-- Closed
Level 2 -- Four-wheel Drive
Level 3 -- Poor Quality, Unpaved
Level 4 -- Unpaved
Level 5 -- Paved
State Highways
Undesignated Roads/Streets
Trails
Brad P. Freeman
Dan Beebe
other
FERC Boundary Area
Diversion Pool DUA
Diversion Pool
Cherokee Road
Closed Gate
Lakeland Blvd
Lausen St
Fernwood Ave
Colina Way
Diversion Dam
Diversion Canal
Lakeland Blvd Trailhead Access
Table Mtn Blvd
Long Bar Road
Fish Ladder Area
Feather River Fish Hatchery
Hatchery Operations Area
Nature Center
Feather River
Montgomery St
Oroville Dam Blvd--East
Source: DWR GIS / EDAW 2003
1,000 500 0 1,000 Feet
Scale 1 : 12,000
1" = 1000 ft
STATE OF CALIFORNIA
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Figure 5.2-16
(R1)
Lakeland Blvd Trailhead Access
Shoreline Constraint
Prepared by: PJ--EDAW, Inc.
Date 9/23/03
P:\2000\0s016.gis\arcmap\acc_12k_lakeland.mxd

The roads used to access Bidwell Canyon include:

- SR 162 (L5);
- Kelly Ridge Road (L5);
- Arroyo Drive (L5); and
- Bidwell Canyon Road (L5).

These paved roads (L5) are in good to adequate condition (see Figure 5.2-1). Typical of the majority of recreation sites, there is only one access route to each Bidwell Canyon recreation site. These singular entry points have not caused any apparent access constraints. The entry to the recreation area is controlled at a staffed entry booth. There are two entry lanes but minor congestion can occur at busy times. Directional signs are posted in logical locations, and there are no known vehicular constraints to any of the Bidwell Canyon recreation facilities.

5.2.1.2 Lime Saddle Campground, Group Campground, Day Use Area, and Boat Ramp

Lime Saddle is located on the western branch of the Feather River. Lime Saddle Campground, Group Campground, DUA, and BR have collectively received an average of about 74,000 visitors annually over the last 27 years. The DUA is located on the eastern edge of the BR parking lot. The campground is farther up Lime Saddle Road on the Lime Saddle Memorial Park peninsula. Shoreline access is used by boaters at various reservoir levels. All of the Lime Saddle facility parking lots are paved, with a total of 334 spaces.

The roads used to access this site include:

- SR 70 (L5);
- SR 99 (L5);
- SR 191 (L5);
- Durham-Pentz Road (L5);
- Pentz-Magalia Road (L5);
- Lime Saddle Road (L5); and
- Lime Saddle Marina Road (L5).

These paved roads (L5) are in good to adequate condition (see Figure 5.2-1). Typical of the majority of recreation sites, there is only one access route to each Lime Saddle recreation site. These singular entry points have not caused any apparent access constraints. There are two staffed entry stations, one at the campground entry and one at the marina entry. The eastern campground loops, including the group campground, are closed during off-peak season. Directional signs are posted in logical locations, and there are no known vehicular constraints to any of the Lime Saddle recreation facilities.

5.2.1.3 Loafer Creek Campground, Group Campground, Horse Campground, Day Use Area, and Boat Ramp

The Loafer Creek area contains a campground, group campground, horse campground, DUA, and BR. Reported visitation has averaged about 73,000 annually over the last 27 years. Shoreline access provides boating, fishing, and swimming opportunities. Swimming access is only available at higher reservoir levels. The paved parking lots provide 429 spaces. Overflow parking is located throughout the campground. All roads within Loafer Creek are paved.

The roads used to access the site include:

- SR 162 (L5); and
- Loafer Creek Road (L5).

These paved roads (L5) are in good to adequate condition (see Figure 5.2-2). Typical of the majority of recreation sites, there is only one access route to the Loafer Creek recreation area. The single entry point (DPR seasonally-staffed entrance station) has not caused any apparent access constraints. Directional signs are posted in logical locations, and there are no known vehicular constraints to any of the Loafer Creek recreation facilities.

5.2.1.4 North Thermalito Forebay RV "en route" Campground, Day Use Area, and Aquatic Center

The North Thermalito Forebay offers an expansive DUA Aquatic Center and an "en route" RV campground. This recreation area has received an average of 66,182 visitors annually over the last 27 years, though the Aquatic Center and RV Campground are relatively new (ca. 1995). All of the recreation facilities at North Thermalito Forebay are located near one another. The two two-lane concrete boat launch ramps provide access to the Forebay for non-powered (or electric motor) boating only. The water level of the North Thermalito Forebay does not vary in a way that affects boating access. Visitors fish and swim or sunbathe on expansive beach and lawn areas, in addition to boating at this location. The parking lot has approximately 190 paved spaces.

The roads used to access the site include:

- SR 70 (L5); and
- Garden Drive (L5).

These paved roads (L5) are in good to adequate condition (see Figure 5.2-3). Typical of the majority of recreation sites, there is only one access route to the North Thermalito Forebay recreation area. The single entry point (DPR seasonally-staffed entrance station) has not caused any apparent access constraints. Directional signs are posted in

logical locations along the way, and there are no known vehicular constraints to any of the North Thermalito Forebay recreation facilities.

5.2.1.5 Oroville Wildlife Area

Fishing, hunting, camping, nature study, and river-associated recreation are the primary activities at the OWA. Swimming and fishing access is available at the OWA ponds and the Feather River within the OWA boundary. There are an undetermined number of unpaved parking spaces located throughout the OWA.

The main roads used to access the OWA include:

- SR 70;
- SR 162 (L5);
- Larkin Road (L5);
- Vance Avenue (L5);
- Palm Avenue(L5); and
- Pacific Heights Road (L5).

There are 13 access points to the OWA on various roads, all in good to adequate condition, including those listed above (Figures 5.2-3). Toland Road is used for trailhead access into the OWA north of the Thermalito Afterbay.

Figure 5.2-4. OWA Levee Road Drop-Off (view from above).
(Constraint R-1, See Section 6.2).

Figure 5.2-5. OWA Level 3 Road Example.
Level 3 (Constraint P-1, See Section 6.2).

Figure 5.2-6. OWA Levels 3 and 4 Road Examples.
(Constraint P-1, See Section 6.3)

Constraints to vehicular access are summarized as follows:

- An OWA levee road (L3) south of One-Mile Pond was washed out and now has a drop-off only passable by a four-wheel drive vehicle. This may prohibit access by some visitors who would otherwise use that part of the OWA (Figure 5.2-4).
- While the roads leading to the OWA are in adequate condition, the roads within the OWA are generally in poor condition and could deter some potential recreators (Figures 5.2-5 and 5.2-6).
- Just east of the Vance Avenue entrance (within the OWA) that the road becomes high clearance only (L2). There are few opportunities to turn around on the high clearance stretch.
- Trees occasionally fall onto roads.

- Old signs or a lack of signs at several entrances to OWA, such as at Palm Avenue, Vance Avenue, and SR 162 at the DFG headquarters, do not present clear direction for drivers.

5.2.1.6 Lake Oroville Visitors Center

The Lake Oroville Visitors Center has received an average of about 121,000 visitors annually in the last 27 years. The Visitors Center provides interpretive displays and has a 47-foot viewing tower that provides a panoramic view of Lake Oroville. Areas outside provide picnicking and equestrian trail access. There is no shoreline access available from this site. The parking lot is paved with 100 spaces, including some designated for bus parking.

The roads used to access the site include:

- SR 162 (L5); and
- Kelly Ridge Road (L5).

These paved roads (L5) are in good to adequate condition (see Figure 5.2-2). Typical of the majority of recreation sites, there is only one entry point to the Lake Oroville Visitors Center parking lot. The singular entry point has not caused any apparent access constraints. The Visitors Center is located in a densely-developed neighborhood, but this has not appeared to cause any constraints to vehicular access. Directional signs are posted in logical locations along the way, and there are no other known vehicular constraints to the Lake Oroville Visitors Center recreation facilities. Though the facility caters to frequent school groups, visitation may be moderated by the fact that the Visitors Center is relatively distant from the lake or other popular recreation areas.

5.2.1.7 Monument Hill (Thermalito Afterbay) Boat Ramp/Day Use Area

The Thermalito Afterbay at Monument Hill provides 17 miles of shoreline for swimming, fishing, picnicking, and limited hunting. The BR has two lanes and a floating dock. There are approximately 75 total parking spaces in two lots; one is paved, the overflow parking is gravel.

- The site is located just off of SR 162 (L5).

The entry road off of SR 162 is paved (L5) and in good to adequate condition (see Figure 5.2-3). Thermalito Afterbay BR/DUA has only one entry point. The singular entry point has not caused any apparent access constraints. Directional signs are posted in logical locations along the way, and there are no other known vehicular constraints to the Thermalito Afterbay BR/DUA and DUA recreation facilities.

5.2.1.8 Oroville Dam

The Oroville Dam provides a viewpoint for visitors and is also used as a recreational pathway for walking and biking. Picnic tables and restrooms are also provided. While there is no boating or swimming access, some visitors fish off of the dam and it is popular for walkers and joggers. Paved parking (approximately 400 spaces) on top of the dam has been closed since September 11, 2001 for security reasons. Parking (approximately 50 spaces) is still available at the northwest end of the dam.

The roads used to access the site include:

- SR 162 (L5);
- Canyon Drive (L5);
- Oroville Dam Boulevard (L5); and
- Royal Oaks Drive (L5).

These paved roads (L5) are in good to adequate condition (see Figure 5.2-2). Typical of the majority of recreation sites, there is only one entry point to the Oroville Dam. The singular entry point has not caused any apparent access constraints, except for congestion reported during the Fourth of July fireworks shows. As a self-guided scenic route, a green line was painted on roads leading to the dam beginning at Montgomery and SR 70. The route passes Directional signs are posted in logical locations, and there are no other known vehicular constraints to the Oroville Dam recreation facilities.

5.2.1.9 Spillway Boat Ramp and Day Use Area

The Spillway DUA provides the largest boat launch facility at Lake Oroville with a total of 22 lanes. The site has received an average of about 97,000 visitors annually in the last 27 years. The DUA site renovated in 2002 provides picnic tables, restrooms, and a fish cleaning station in addition to the launch ramps. Shoreline fishing is also available at this site. There are 1,095 paved spaces in the Spillway parking lots.

The roads used to access the site include:

- SR 162 (L5);
- Oroville Dam Boulevard (L5); or
- Canyon Drive (L5).

These paved roads (L5) are in good to adequate condition (see Figure 5.2-2). Typical of the majority of recreation sites, there is only one entry point to the Spillway DUA, the road across the Oroville Dam. The singular entry point has not caused any apparent access constraints, though some security issues are still being reviewed. Directional signs are posted in logical locations along the way, and there are no other known vehicular constraints to the Spillway DUA recreation facilities.

5.2.2 Average Use Areas

"Average use" areas have received approximately 10,000 to 50,000 visitors annually in the past 27 years. Four day use/boat launch areas fall into this average use range. Attendance data have not been gathered for all the sites; however, field staff have reported which sites receive high, average, and low use. Vehicular access descriptions regarding specific sites are summarized below. None of the average use areas appears to have any constraints restricting or affecting public access. All of these areas can be located on Figure 5.1-1 as well as on Figure 5.2-3. The key for detail maps is also presented on Figure 5.1-1.

5.2.2.1 Bedrock Park

Bedrock Park is located along the Feather River, southwest of the Dam and east of the Afterbay. Bedrock Park is managed by the Feather River Recreation and Parks District (FRRPD). Bedrock Park, while not located within the Project boundary, is a fairly popular park for day use recreation and is therefore included in this Access Study. The site offers opportunities for picnicking, walking, tennis, swimming, and fishing. The site is popular with families because the swimming area has a low-flow pool that is safer for children. The Brad P. Freeman Trail can be accessed from Bedrock Park. There are 77 paved parking spaces, but overnight parking is not allowed.

The roads used to access the site include:

- SR 70 (L5);
- Oroville Dam Boulevard (L5);
- Montgomery Street (L5); and
- Feather River Boulevard (L5).

These paved roads (L5) are in good to adequate condition (see Figure 5.2-3). Typical of the majority of recreation sites, there is only one entry point to Bedrock Park. The singular entry point has not caused any apparent access constraints. Directional signs are posted in logical locations along the way, and there are no other known vehicular constraints to Bedrock Park recreation facilities.

5.2.2.2 Riverbend Park

Riverbend Park is located just south of Bedrock Park along the Feather River. Riverbend Park is managed by the Feather River Recreation and Parks District (FRRPD). This park is not within the study area but is a component of the recreation setting and has vehicular access. Shoreline fishing is popular at the site. The Brad P. Freeman Trail can be accessed from Riverbend Park. There are approximately 80 unpaved parking spaces, but overnight parking is not allowed.

The roads used to access the site include:

- SR 70 (L5);
- Oroville Dam Boulevard (L5);
- Montgomery Street (L5); and
- Feather River Boulevard (L5).

These paved roads (L5) are in good to adequate condition (see Figure 5.2.3). Typical of the majority of recreation sites, there is only one entry point to Riverbend Park. The singular entry point has not caused any apparent access constraints. A new road between the smaller and larger fish ponds is under construction, which will facilitate vehicular access. Directional signs are posted in logical locations along the way, and there are no other known vehicular constraints to Riverbend Park recreation facilities.

5.2.2.3 South Thermalito Forebay Boat Ramp/Day Use Area

The South Thermalito BR and DUA provide opportunities for picnicking, swimming, and fishing in addition to boating. There are two lanes on the BR; power boating is allowed on this portion of the Forebay. The recreation site has received an average of over 13,000 visitors annually in the last 27 years. There are approximately 75 unmarked parking spaces in the gravel lot.

The main roads used to access the site include:

- SR 70 (L5); and
- Grand Avenue (L5).

These paved roads (L5) are in good to adequate condition (see Figure 5.2-3). Typical of the majority of recreation sites, there is only one entry point to the South Thermalito Forebay. The singular entry point has not caused any apparent access constraints. Directional signs are posted along Grand Avenue but not on SR 70. There are no other known vehicular constraints to the South Thermalito BR and DUA recreation facilities.

5.2.2.4 Dark Canyon Car-Top Boat Ramp

The Dark Canyon Car-top BR is located on the western branch of the Feather River. This BR has one lane and provides unpaved parking for approximately 15 to 30 vehicles. At higher reservoir levels, much of this parking is underwater. The end of the boat ramp is at 810 feet msl.

The roads used to access the site include:

- SR 70 (L5);

- Big Bend Road (L5); and
- Dark Canyon Road (L5).

These paved roads (L5) are in good to adequate condition (see Figure 5.2-1). While there are several routes that could be taken to arrive at Dark Canyon Car-top BR, there is only one entry point. The singular entry point has not caused any apparent access constraints.

A constraint to vehicular access is summarized as follows:

- There are no directional signs at key locations along the route to the site, making the site difficult to find.

There are no other known vehicular constraints to the Dark Canyon Car-top BR recreation site.

5.2.2.5 Foreman Creek Car-Top Boat Ramp

The Foreman Creek Car-top BR is located on the edge of the main basin of Lake Oroville. This BR has one two-lane ramp for boat launching, with unpaved parking for 15 to 30 vehicles at lower pool levels. At higher pool levels there is parking for approximately seven vehicles. The ramp, actually an old road, is open at all reservoir levels. The site also provides swimming and fishing access.

The roads used to access the site include:

- SR 162 (L5);
- Foreman Creek Road (L5); and
- A DWR access road (L2).

The DWR access road branches from Foreman Creek Road (Figure 5.2-2). The road is paved (L5) to 800 feet msl. Past the pavement, during low water conditions, the road becomes accessible only by four-wheel drive vehicles (L2). This canyon road used to be a primary roadway before Lake Oroville was filled. At very low pool levels, it is possible to drive from the Car-top BR via the DWR access road to Foreman Island.

The two-lane boat ramp is used at low water but vehicle access is restricted at times due to discovery of sensitive resource sites in 2002.

Figure 5.2-7. Foreman Creek Car-top BR at low pool level.
(Constraint C-1, See Section 6.2).

A possible constraints includes the following:

- The road below 800 feet msl is broken asphalt with dirt patches to the shoreline, limiting the types of vehicles that can access the shoreline at this site (Figure 5.2-7).
- The island is accessible only during low water levels (Figure 5.2-8).
- Intermittent BR closures due to presence of sensitive cultural resources has inhibited vehicular access.

Figure 5.2-8. Foreman Creek Road/DWR Access Road.
Access to the island and shoreline are under water during higher lake levels (Constraint C-1, See Section 6.31).

5.2.2.6 Larkin Road (Thermalito Afterbay) Car-Top Boat Ramp

The Larkin Road (Thermalito Afterbay) Car-top BR provides one unpaved boat launch lane. The paved parking area can hold from 30 to 50 vehicles.

The roads used to access the site include:

- SR 162/SR 99/SR70 (all L5);
- East Hamilton Road (L5); and

- Larkin Road (L5)

These paved roads (L5) are in good to adequate condition (see Figure 5.2-3). There are several routes that can be taken to access the Larkin Road (Thermalito Afterbay) Car-top BR. All of the routes are in good to adequate condition. Typical of the majority of recreation sites, there is only one entry point to the Larkin Road (Thermalito Afterbay) Car-top BR. The singular entry point has not caused any apparent access constraints. Directional signs are posted in some locations along the way.

One possible constraint to vehicular access includes:

- There is no signage for the Larkin Road (Thermalito Afterbay) Car-top BR on SR 70, SR 162 or SR 99.

There are no other known vehicular constraints to recreation facilities at the site.

5.2.2.7 Nelson Bar Car-Top Boat Ramp

The Nelson Bar Car-top BR is located off the West Branch of the Feather River. The BR has one lane but is blocked to vehicular access at low water levels by a mound of dirt. Visitors can carry boats down to the water on foot. The BR is usable only at high water levels between approximately 850 and 900 feet msl. Below 850 feet msl, the ramp is covered with soil that has eroded from the hillside. The site has a gravel parking lot at 894 feet msl that holds approximately 30 to 50 vehicles but typically does not reach capacity. At very high water levels there is still parking available, however, this is often not enough parking because of increased use probably generated by the new Lime Saddle Campground.

The roads used to access the site include:

- SR 70 (L5);
- SR 191 (L5);
- Pentz Magalia Road (L5);
- Durham Pentz Road (L5);
- Pentz Road (L5); and
- Lime Saddle Road (L5).

These paved roads (L5) are in good to adequate condition (see Figure 5.2-1). Typical of the majority of recreation sites, there is only one entry point to Nelson Bar Car-top BR. The singular entry point has not caused any apparent access constraints. Directional signs are posted in logical locations along the way. If repairs are proposed, it is likely that the lower section of the boat launch ramp would need resurfacing.

Figure 5.2-9. Nelson Bar Car-top BR.
Boat ramp is covered with dirt that has eroded from the hillside when water is at levels below approximately 840' ms. (Constraint R-3, See Section 6.2). Water level in this photo is at 882' msl.

Possible constraints include the following:

- There is a limited ability to launch watercraft at this site during low water conditions due to blockage on the ramp's surface. The blockage is a large mound of dirt that covers the width of the BR.
- At the highest pool levels, above 894 feet msl, the parking lot is inundated. This is a relatively infrequent occurrence. Currently there appears to be enough parking to accommodate users, even on busy weekends at high pool levels (Figure 5.2-9). However, if demand increases in the future, demand for parking may exceed supply when the water is above 894 feet msl. The maximum normal operating level of the reservoir is 900 feet msl.

5.2.2.8 Stringtown Car-Top Boat Ramp

In addition to boating, the Stringtown Car-top BR supports fishing and swimming. The BR can be used at low to high water levels, but has parking for only approximately ten vehicles during high water conditions.

The roads used to access the site include:

- SR 162 (L5);
- Forbestown Road (L5);
- Hurleton Road (L5); and
- Stringtown Road (L5).

These paved roads (L5) are in good to adequate condition (Figure 5.2-2). Typical of the majority of recreation sites, there is only one entry point to Stringtown Car-top BR. The singular entry point has not caused any apparent access constraints. Below the upper concrete boat ramp, the lower part of the boat ramp is a former country road which is

used to launch boats at lower reservoir levels (below approximately 800 feet msl). This section is in poor condition (Figure 5.2-10) and makes for rough launching.

Figure 5.2-10. Upper portion of ramp at Stringtown Car-top BR.
This portion of the boat ramp can be used at medium to high reservoir levels.

Figure 5.2-11. Lower portion of ramp at Stringtown Car-top BR.
This portion of the boat ramp is used at lower levels but is in poor condition (Constraint R-4, See Section 6.2, Table 6.1.2).

Possible constraints include the following:

- The boat launch ramp pavement (and road below the concrete upper portion, Figure 5.2-10) is in poor condition (Figure 5.2-11), making for rough launching when the water drops below the concrete.
- There is no directional sign on Hurleton Road (Figure 5.2-12) or on Forbestown Road, making it difficult for visitors to locate the site.

Figure 5.2-12. Hurleton Road and Stringtown Road intersection.
This photo shows the location of the sign for Stringtown Car-top BR when traveling from the west. The sign is too far past the intersection for clear direction when coming from the east (Constraint S-4, See Section 6.2, Table 6.1.2).

5.2.2.9 Vinton Gulch Car-Top Boat Ramp

The Vinton Gulch Car-top BR is located on the West Branch of the Feather River. This BR has a single lane that is usable at high water levels (from 860 to 900 feet msl). In addition to boating, shoreline access also supports fishing. There are approximately ten unpaved parking spaces. The site has limited parking so that if there are several vehicles, drivers have to park quite a distance from the shoreline (Figure 5.2-12).

The roads used to access the site include:

- SR 70 (L5);
- Cherokee Road (L5); and
- Vinton Gulch Road (L4).

These paved roads (L5) are in good to adequate condition (see Figure 5.2-1). Typical of the majority of recreation sites, there is only one entry point to Vinton Gulch Car-top BR. The singular entry point has not caused any apparent access constraints.

Possible constraints include the following:

- Poor directional signage may affect the ability to locate the site. There is no directional sign on SR 70.
- There is a poor directional sign on Cherokee Road, making it difficult for visitors to find the turn into the site if they aren't familiar with the roads.
- Minimal parking at higher pool levels can limit access. If there are several vehicles, drivers have to park quite a distance from the shoreline (Figure 5.2-13).

5.2.2.10 Wilbur Road (Thermalito Afterbay) Boat Ramp

The Wilbur Road BR is a two-lane boat launch ramp with a boarding dock. This area is popular among seasonal hunters, hunting-dog trainers, and equestrians. There is paved parking for approximately 14 vehicles.

The roads used to access the site include:

- SR 162 (L5);
- Wilbur Road (L5); and
- Two entrance roads (L4).

These roads are in good to adequate condition (Figure 5.2-3). There are two entry points to the Wilbur Road (Thermalito Afterbay) BR, but the dirt road from the south (SR 162) is not signed. Directional signs are posted in logical locations along the way to the east entrance, and there are no other known vehicular constraints to recreation facilities at the Wilbur Road (Thermalito Afterbay) BR.

5.2.3 Low Use Areas

"Low use" areas, which have received an average of 10,000 visitors or less annually, include the BICs, the Car-top BRs, and various other day use areas. User numbers have not been gathered for all of the sites; however, field staff have noted which sites receive high, average, and low use. Narratives of vehicular access regarding specific sites are summarized below. All of these areas can be located on Figure 5.2-1 as well as on Figures 5.2-1 through 5.2-3. The key for detail maps is located on Figure 5.1-1.

Vehicular access descriptions to BICs include discussions of boating access as well as automobile access. Only maintenance vehicles typically have vehicular access to BICs. BICs are typically used only at higher reservoir levels. As the reservoir drops, trails to the campsites uncovered by receding water are long, steep, and rugged. BICs combined have received an average of about 5,000 visitors annually in the last 27 years. None of the BICs have a designated dock or mooring points; boats park wherever is most convenient along the shore.

The Car-top BRs collectively have received an average of 23,000 visitors annually in the last 27 years. Part of this study was an evaluation of available parking at smaller BRs; this is considered an access issue because if parking is too scarce, it limits access to some of the small BRs. At these smaller ramps, parking may be located quite a distance from the water; thus, a lack of parking may constitute an access issue. Some parking at some sites such as Foreman Creek Car-top BR, Nelson Bar Car-top BR, and Vinton Gulch Car-top BR is below the surface of the water at higher pool levels and is unusable however this is a relatively infrequent occurrence.

Figure 5.2-13. Vinton Gulch Car-top BR parking constraint.

[8.5 x 11 Insert]

5.2.3.1 Afterbay Outlet Boat Ramp

The Afterbay Outlet Boat Ramp is located just upstream, northeast, of the Afterbay Outlet on the Feather River within the OWA. The BR has one unimproved lane for boat launching. There is no designated parking, restrooms or garbage cans at the BR.

The main roads used to access the Afterbay Outlet Boat Ramp in the OWA include:

- SR 70;
- SR 162 (L5);
- Larkin Road (L5);
- Vance Avenue (L5);
- Palm Avenue(L5); and
- Pacific Heights Road (L5).

There are 13 access points to the OWA on various roads, all in good to adequate condition, including those listed above (Figures 5.2-3). When the Afterbay Outlet BR is muddy, it is usable only by four-wheel drive vehicles (typically after rain). Other types of vehicles launching during muddy conditions frequently have difficulty exiting the ramp. This ramp is scheduled to be improved and paved in 2004 (pers., comm. D. Rischbieter, DWR 2003).

Constraints to vehicular access are summarized as follows:

- Ramp is in poor condition, especially inaccessible to non-four-wheel drive vehicles during muddy conditions.
- Old signs or a lack of signs at several entrances to OWA, such as at Palm Avenue, Vance Avenue, and SR 162 at the DFG headquarters, do not present clear direction for drivers.

5.2.3.2 Bald Rock Canyon Access

The Bald Rock Canyon Run provides whitewater boating opportunities to advanced whitewater boaters. However, there are currently no public access roads to the shoreline on the Middle Fork of the Feather River. Kayakers occasionally access the river for boat take-out from Island Bar Hill Road or Eckards Lane but both of these are private roads (Figure 5.2-2). The boat put-in is located on Mulsap Road which is outside the Project boundary. However, since access for boating on this section of the river is generally taking place from private roads, it is not regarded as a managed recreation opportunity by any of the CA State departments (DBW, DPR or DWR).

Three roads are occasionally used by whitewater boaters for improvements to provide boat take-out access:

- Eckards Lane (private, Figure 5.2-14);
- USFS Road 20N59 near Feather Falls; and
- Island Bar Hill Road (private).

Figure 5.2-14. Views of Eckards Lane.
This road leads to the end of Bald Rock Canyon Run (Constraint C-3, See Section 6.3).

These three roads are the closest roads to the end of a whitewater run on the Middle Fork called the Bald Rock Canyon Run. If kayakers could take out at one of these three roads they would avoid more than three hours of flatwater paddling to take out at Loafer Creek. Any future use of the two private roads should require negotiated easements or agreements for permanent access. The USFS road would likely require improvements to be accessible (pers. comm., McNutt 2003).

5.2.3.3 Big Bend Access

The Big Bend reach of the North Fork Feather River provides boating opportunities during periods of low reservoir levels. Poe Powerhouse Road, which provides access, is divided into three sections. The upper section which currently provides unsanctioned access to the river runs between the SR 70 and Poe Powerhouse Road. The middle section, closed to vehicle access and more accurately described as a trail, runs between PG&E's Poe Powerhouse and the lower section of Poe Powerhouse Road. The lower section of Poe Powerhouse Road runs from the shore of the North Fork Feather River and French Creek Road and is also inaccessible due to road conditions (Figure 5.2-15). Access for boating on this section of the river is taking place from publicly accessible roads but is not provided as a developed recreation opportunity by any of the managing departments (DBW, DPR or DWR).

The roads that could be used to access the Big Bend include:

- SR 162 (L5);
- French Creek Road(L4); and
- Lower Poe Powerhouse Road (L2).

SR 162 and French Creek Road are in good to adequate condition (Figure 5.2-1).

Figure 5.2-15. Lower Poe Powerhouse Road.
Level 4 (Constraint P-2, See Section 6.3).

Possible constraints include the following:

- Poe Powerhouse Road is passable only in a four-wheel drive. There are steep drop-offs to the river along the road. The road is also narrow and is perhaps more appropriate for trail use activities (Figure 5.2-14).

5.2.3.4 Boat-in Campgrounds

Bloomer Cove, Knoll, Point, and Group Boat-In Camps

The Bloomer BIC sites are located on the lower North Fork of the Feather River. The four BICs provide 35 individual/family campsites and one 75-person capacity group campsite for boat-in camping. The campsites have tables, fire rings, shared trash cans, and primitive restrooms.

The roads used to access the site by DPR for maintenance include:

- SR 70 (L5);
- Cherokee Road (L5);
- Oregon Gulch Road (L2); and
- Oregon City Trail road (L4).

In the past, DPR has used the Oregon City Trail road for maintenance access (see Figure 5.2-1). The length of road with a private, locked gate is located outside the Project area. No public vehicular access is permitted. DPR is working with the landowners to renew access to this access road. There are no other known vehicular constraints to accessing Bloomer Cove by car, though boat access becomes unattractive during low water conditions.

Craig Saddle Boat-In Camp

Craig Saddle BIC can be approached from either the Middle or South Fork of the Feather River and is located east of the Bidwell Bar Bridge. This BIC, with 18 campsites, has received an average of about 8,000 visitors (both overnight and day use) annually over the last 27 years.

The roads used to access the site by DPR for maintenance include:

- SR 162 (L5);
- Forbestown Road (L5);
- Lumpkin Road (L5);
- Craig Access Road (L4); and
- A DWR access road (L4).

The DWR access road (usually maintained by DPR) has a locked gate and is used to service the Craig Saddle BIC facilities (see Figure 5.2.2). Some campers and occasional day users walk in to the BIC from the road, passing around the gate on foot. While the locked gate prevents vehicles from entering the site, it is considered appropriate since the site is designed for boat-in camping and not for car camping. The Craig Access Road is unpaved and not designed for high volumes of traffic. There are no other known vehicular constraints to accessing Craig Saddle either by boat or car.

Foreman Creek Boat-In Camp

Foreman Creek BIC is located on the north side of the main basin of Lake Oroville. The BIC has 26 individual/family campsites. The BIC is located on a peninsula and can be accessed by boat from either side of the peninsula.

The roads used to access the site by DPR for maintenance include:

- SR 162 (L5);
- Foreman Creek Road (L4 & L5, Figure 5.2-12); and
- DWR access road (L2 & L3).

Foreman Creek Road is gated where it branches off to Foreman Creek BIC (Figure 5.2-2). The other branch becomes the service road that is used to access the Foreman Creek Car-top BR. The BIC service road is in poor condition and is primarily used by DPR. However, DPR typically uses a boat to access and maintain the site.

The service road has a locked gate that is normally secured, preventing public vehicles from driving into the BIC. While the locked gate prevents vehicles from entering the site, it is considered appropriate since the site is designed for boat-in camping and not for car camping.

Goat Ranch Boat-In Camp

The Goat Ranch BIC is located on the lower North Fork of the Feather River. The five campsites at this BIC are located within a few feet of the high water line.

The roads used to access the site by DPR for maintenance of Goat Ranch BIC include:

- SR 70 (L5);
- Cherokee Road (L5); and
- Condor Road (private, gated).

The two public roads are paved and in good to adequate condition. Condor Road is not accessible due to a locked gate therefore the road type is unknown (see Figure 5.2-1). If this road were improved and used by the public for camping at Goat Ranch BIC, it could detract from the boat-in camping experience. Maintaining this road at its current level seems to be appropriate to discourage vehicular access. There are no other known vehicular access constraints.

5.2.3.5 Clay Pit State Vehicular Recreation Area (SVRA)

The Clay Pit SVRA is adjacent to the OWA. The land depression where the SVRA is located was created when clay was mined to build the dam and reservoir. The site has received an average of about 5,200 visitors annually over the last 27 years for motorcycle, all-terrain vehicle (ATV), and dune buggy use. The paved parking area holds approximately 20 vehicles.

The roads used to access the site include:

- SR 162 (L5); and
- Larkin Road (L5).

These paved roads (L5) are in good to adequate condition (Figure 5.2-3). Typical of the majority of recreation sites, there is only one entry point to the Clay Pit SVRA. The singular entry point has not caused any apparent access constraints.

Possible constraints include the following:

- There is no directional sign on SR 162 or Larkin Road, making the site difficult to locate for some visitors.

There are no other known vehicular constraints to the Clay Pit SVRA recreation facilities.

5.2.3.6 Diversion Pool Day Use Area (Burma Road)

The Diversion Pool DUA along Burma Road provides access to approximately 5 miles of shoreline and has received an average of about 10,000 visitors annually over the last 27 years. Burma Road accesses only the west side of the Diversion Pool DUA. The site is used for picnicking, swimming, and non-motorized (or electric motor) car-top boating. The Brad P. Freeman Trail follows Burma Road for approximately 1 mile. Visitors park along the Burma Road shoulder.

The roads used to access the site include:

- SR 70 (L5);
- Cherokee Road (L5); and
- Burma Road (L4).

These roads are in good to adequate condition (see Figure 5.2-3). Typical of the majority of recreation sites, there is only one vehicular entry point to the Diversion Pool DUA. The singular entry point has not caused any apparent access constraints. Vehicular access to the Diversion Pool is permitted during daylight hours, from sunrise to sunset, and is controlled with a gate at the intersection of Burma and Cherokee Roads. Even with the gate closed, pedestrian or trail use at the Diversion Pool and access to the Brad P. Freeman Trail can occur.

Burma Road is 0.9 mile in length and has a 70-plus foot long turnout at the 0.7-mile mark. The end of the road also has a small turnaround circle. There is sufficient space on Burma Road for two-way traffic in most stretches. The road is bounded by a hillside to the north and the Thermalito Diversion Pool to the south. The road has many unmarked turnouts for parking. This road also provides the part of the Brad P. Freeman Trail that connects the Diversion Pool DUA to Oroville Dam; other trails connect in this area and provide access to the Loafer Creek area. Vehicular access via Burma Road terminates at Morris Ravine and then becomes a trail; a footbridge crosses over a small creek. A new gate system was installed on the footbridge in February 2003. This permanently-gated portion of the old Burma Road allows non-motorized passage along the river's edge to the Dam.

Possible constraints include the following:

- The gate to the DUA off Cherokee Road is locked at sunset. This could prohibit use for equestrians, bicyclists, boaters and hikers wishing to return to their vehicles at the site or who otherwise want to leave the site after sunset.

5.2.3.7 Enterprise Boat Ramp

The Enterprise BR is located on the south fork of the Feather River. The site has reportedly received an average of 8,278 visitors annually in the last 27 years. In addition to boating, fishing and swimming are also popular at this site. The BR has two lanes that can be used above 820 feet msl. There are 40 vehicle parking spaces at this location.

The roads used to access the site include:

- SR 162 (L5);
- Forbestown Road (L5);
- Lumpkin Road (L5); and
- Enterprise Road (L5).

The ramp at the site is poured concrete slab (Figure 5.2-2). The boat launch ramp is usable from reservoir elevations from full pool down to 830 feet above sea level. Beginning in 2002, during periods when the ramp is out of water, there have been intermittent road closures along the shoreline due to the presence of cultural resources.

Possible constraints include the following:

- The ramp is usable only down to 830 feet above sea level, seasonally limiting the usefulness of this site to launch boats.
- Intermittent road closures due to the presence of sensitive cultural resources has inhibited vehicular access.

5.2.3.8 Feather River Fish Hatchery

The Feather River Fish Hatchery is located near the head of the Feather River low-flow channel. The hatchery provides an outdoor park area and several fish observation areas for recreation. The parking areas are paved with approximately 100 visitor parking spaces at the fish hatchery. There is no shoreline access at the fish hatchery.

The roads used to access this site include:

- SR 70 (L5);
- Nelson Avenue (L5); and
- Table Mountain Boulevard (L5).

These paved roads (L5) are in good to adequate condition (see Figure 5.2-3). Typical of the majority of recreation sites, there is only one entry point to the public areas of the Feather River Fish Hatchery. The singular entry point has not caused any apparent access constraints. Directional signs are posted in logical locations along the way and

there are no known vehicular constraints to the Feather River Fish Hatchery recreation facilities.

5.2.3.9 Lakeland Boulevard Day Use Area

The Lakeland Boulevard DUA is located at the northeast corner of the Feather River Bypass Reach near the Diversion Dam. The site is unpaved and provides parking for trail access that is commonly used by equestrians. There is no shoreline developed access at the site.

The roads used to access this site include:

- SR 70 (L5);
- Oroville Dam Boulevard (L5);
- Montgomery Street (L5);
- Long Bar Road (L5);
- Lausen Street (L5);
- Fernwood Street (L5);
- Colina way (L5); and
- Lakeland Boulevard (L5).

These paved roads (L5) are in good to adequate condition (Figure 5.2-3) though most travel trough residential areas. Typical of the majority of recreation sites, there is only one entry point to Lakeland Boulevard DUA. The singular entry point has not caused any apparent access constraints. DWR has requested purchase or easement of a small piece of land from Union Pacific Railroad adjacent to the DUA to help develop vehicular shoreline access. Directional signs are posted in logical locations along the way, and there are no known vehicular constraints to Lakeland Boulevard DUA recreation facilities.

Possible constraints include the following:

- The gate to the site is locked from sunset to dawn. This could prohibit use for equestrians, bicyclists, and hikers wishing to leave their vehicles at the site who want to leave the site after sunset (Figure 5.2-16).

5.2.3.10 Model Aircraft Flying Area

The Model Aircraft Flying Area is located at the northeast end of the Thermalito Afterbay. The site has unpaved parking for approximately 20 vehicles. There is shoreline access at the site, but it is typically not used for water-based recreation.

Figure 5.2-16. Lakeland Boulevard Trail Access DUA Shoreline Constraint.

[8.5 x 11 insert]

The roads used to access the site include:

- SR 162 (L5);
- Wilbur Road (L5); and
- Unnamed Service Road (L4).

These roads (L4 and L5) are in good to adequate condition (Figure 5.2-3). Typical of the majority of recreation sites, there is only one entry point to the Model Aircraft Flying Area. The singular entry point has not caused any apparent access constraints, but the unnamed service road is usually gated (locked) unless a member of an organized group is using the site. Wilbur Road is paved south of Tres Vias Road. There is one directional sign posted at the entrance. There are no other known vehicular constraints to recreation access at the Model Aircraft Flying Area.

5.2.3.11 OWA Unimproved Boat Ramps

There are several unimproved boat ramps within the OWA, including ramps located along the Feather River near the OWA Vance Avenue and Palm Avenue entrances. These ramps are unpaved gravel launches that have expanded with use. Both car-top and trailer launching occur at many of these ramps. There are no facilities associated with any of the ramps. There are no current plans to improve any of these boat ramps.

The main roads used to access the Afterbay Outlet Boat Ramp in the OWA include:

- SR 70;
- SR 162 (L5);
- Larkin Road (L5);
- Vance Avenue (L5);
- Palm Avenue(L5); and
- Pacific Heights Road (L5).

There are 13 access points to the OWA on various roads, all in good to adequate condition, including those listed above (Figures 5.2-3).

Constraints to vehicular access are the same as those for the OWA camping facilities and are summarized in section 5.2.1.5.

5.2.3.12 Rabe Road Shooting Range

The Rabe Road Shooting Range is located adjacent to the OWA. The site is not staffed but has several backstops for target practice. The parking area is unpaved and holds approximately 20 vehicles. There is no shoreline access or any other recreation facilities at this site.

The roads used to access this site include:

- SR 162 (L5);
- Larkin Road (L5); and
- Rabe Road (L5).

These paved roads (L5) are in good to adequate condition (see Figure 5.2-3). Typical of the majority of recreation sites, there is only one entry point to the Rabe Road Shooting Range. The singular entry point has not caused any apparent access constraints; access was upgraded (grading, realignment, gravel) in 2002.

There are no other known vehicular constraints to recreation facilities at the Rabe Road Shooting Range besides the following:

- A lack of directional signs to the site from Larkin Road and SR 70 could cause navigational difficulty for some visitors.

5.2.3.14 Saddle Dam Day Use Area

The Saddle Dam DUA is a gravel parking area used by hikers and equestrians to access the Dan Beebe Trail. The shoreline is easily accessible only at near-full pool levels.

The roads used to access the site include:

- SR 162 (L5); and
- Kelly Ridge Road (L5).

These paved roads (L5) are in good to adequate condition (see Figure 5.2-2). Typical of the majority of recreation sites, there is only one entry point to the Saddle Dam DUA. The singular entry point has not caused any apparent access constraints.

A constraint to vehicular access includes the following:

- The only sign for the DUA is too close to the entrance to be useful for vehicular navigation.

There are no other known vehicular constraints to recreation facilities at the Saddle Dam DUA.

5.3 TRAIL ACCESS

Several areas provide parking for hikers, bikers, and equestrians in the Project study area. Table 5.3-1 lists the areas that provide vehicular access (parking) to trail take-off points and which trails can be accessed from those areas.

5.3.1 Dan Beebe Trail

The Dan Beebe Trail system begins in the far eastern sections of the Loafer Creek Campground. See Figure 5.1-1. The Loafer Creek Campground has many different trail loops within its boundary. The trail continues over the Miners Ranch Dam where it is connected to Bidwell Canyon Campground. The trail continues from Bidwell Canyon Campground through Kelly Ridge Point and follows along the border of the Feather River below the Oroville Dam. The trail system follows along Feather River to the OWA area west of Oroville. The trail passes through many developed recreation sites. Currently, policy changes have opened the trail to multi-use for bicycles, horses, and hikers.

Out of the five access points to the Dan Beebe Trail, one constraint to vehicular access has been identified:

- The gate at the Lakeland Boulevard DUA is locked from sunset to sunrise. This could prohibit use for equestrians, bicyclists, and hikers wishing to return to their vehicles at the site and depart after sunset.

5.3.2 Brad P. Freeman Trail

This trail system is a 41-mile loop and connects to the City of Oroville, Thermalito Afterbay, and the Lake Oroville SRA (Figure 5.1-1). Points of entry are located in many areas including from the parking area on top of the Oroville Dam or the adjacent Spillway DUA. The Diversion Pool DUA at Burma Road is another primary location for accessing the trail.

Out of the 12 access points to the Brad P. Freeman Trail, two constraints to vehicular access have been identified:

- The gate at the Diversion Pool DUA (Burma Road) is locked at sunset. This could prohibit use for equestrians, bicyclists, and hikers wishing to leave the site in their vehicles after sunset.
- Closed parking on top of the dam following identification of security concerns, has displaced trail access from that location to the Spillway DUA.

Table 5.3-1. Vehicular access to trails.

Trail	Access
Dan Beebe Trail	∉ Bidwell Canyon Campground ∉ Lakeland Boulevard DUA ∉ Loafer Creek Campground ∉ Oroville Dam ∉ Saddle Dam DUA
Brad P. Freeman Trail	∉ Bedrock Park ∉ Diversion Pool DUA ∉ East Hamilton Road Trail Access ∉ Lakeland Boulevard DUA ∉ North Thermalito Forebay "En Route" RV Campground/DUA/ Aquatic Center ∉ Wilbur Road (Thermalito Afterbay) BR ∉ OWA Afterbay Outlet Camping Area ∉ Riverbend Park ∉ South Thermalito Forebay BR/DUA ∉ Spillway DUA ∉ Toland Road Trailhead Access ∉ Tres Vias Road Trailhead Access ∉ Oroville Dam
Chaparral Interpretive Trail	∉ Lake Oroville Visitors Center
Feather Falls Trail	∉ Plumas National Forest
Potter Ravine Trail	∉ Spillway DUA
Wyk Island Trail	∉ Bidwell Boat Ramp

5.3.3 Other Trails

There are many other undeveloped trails near and within the Project study area. Four other developed trails are described in this report. These trails can be located on Figure 5.1-1 by finding the associated recreation site. The Feather Falls Recreation Trail is outside of the Project study area and beyond the map boundaries. The Chaparral Interpretive Trail, which is 0.2 mile, is accessed from the Lake Oroville Visitors Center. There are upgrades planned for this trail to make it ADA accessible.

The Feather Falls Recreation Trail is located in the Plumas National Forest. The trail is 4.5 miles each way and leads to the Feather Falls, the sixth highest waterfall in the continental U.S. It is outside the project boundary but a popular destination in the study area.

Roads used to access the Feather Falls Trail include:

- ∉ SR 70 (L5);
- ∉ Forbestown Road (L5);
- ∉ Lumpkin Road (L5); and
- ∉ Bryant Road (L5).

The Potter Ravine Trail is accessed from the Spillway DUA. The trail is 5.5 miles with a loop and a stretch that reaches to the edge of Lake Oroville. The trail is currently planned to be made ADA accessible by the end of 2004.

The Wyk Island Trail, 0.19 mile, is located near the Bidwell Canyon Boat Ramp. The trail is ADA accessible.

5.4 EFFECT OF FUTURE DEVELOPMENT DURING NEW LICENSE PERIOD

Several agencies and departments were contacted to determine if there are any planned road projects that would occur within the Project license period (30 to 40 years or more from 2007) that may affect vehicular access to the study area. Information gathered includes any road projects, projects that may require new roads or would change vehicular access, and projects either current or up to 30 to 40 or more years into the future.

Road projects considered include:

- New roads;
- Road closings;
- Re-routing of roads;
- A change in access to roads; and
- Road improvements.

Agencies and departments contacted include Caltrans, Butte County Public Works Department, City of Oroville Public Works Department, USFS, BLM, DPR, DBW, DFG, and DWR. The following is an outline of the projects that may affect vehicular access to the study area, arranged by the responsible agency or department.

5.4.1 Caltrans

California's Department of Transportation (Caltrans) identified several projects around the Oroville study area (Caltrans District 3). There are three main projects occurring near the study area (pers. comm. Bajwa 2003). The first project is the widening of SR 149 from two to four lanes. The project also entails adding two interchanges, one at the SR 99 and one at SR 70, where there have been several accidents. This project would provide better, faster access to Oroville from Chico and help resolve the accident problem at SR 70. Project construction is scheduled to start in 2004 and run for three seasons, to be finished by 2007. Although SR 149 is a main access route for people coming from Chico and other cities northwest of Oroville, it is not located in the Project area.

The second planned Caltrans project is the SR 70 extension and interchange project. SR 70 south of Oroville will be widened to four lanes and an interchange will be added at Ophir Road. SR 70 will also be extended to Ophir Road and an overpass will be built at Georgia Pacific Way. Construction is scheduled to start in 2006 or 2007, will last approximately two to three years, and will finish around 2009 or 2010. Construction will be done in stages, and though SR 70 will be kept open for traffic, there will be some inconvenience during this construction project. Construction may affect access to the OWA at both the SR 70 and Pacific Heights Road entrances. The interchange at Ophir Road will make it safer than it currently is to get to the Pacific Heights Road entrance from Ophir Road.

The third Caltrans project is a bypass between Marysville and Oroville. Environmental studies are currently being conducted on the bypass project. The bypass project will stretch for 30 miles and require building a new four-lane alignment for SR 70, running from the junction of SRs 65 and 70 south and around the east side of the city of Marysville, across the Yuba River, and end at the Ophir Road interchange in Oroville (the end of the SR 70 extension mentioned above). All of the potential alignments near Oroville occur on the east side of the existing SR 70. A preferred alignment has not yet been chosen. Once the new facility is built, the existing SR 70 will become a County road and be managed by Butte County. Depending on funding, Caltrans hopes to start construction in eight to ten years. Construction is estimated to last ten to 15 years. This project will make travel faster in the region, especially from Oroville to Marysville and Yuba City. This project, like the prior two, should not impact vehicular access to the study area. The project is located mostly south of the Project area and will not interrupt direct access to the study area.

Caltrans is considering a project on SR 162 from Oroville Dam Boulevard to the Gold Country Casino. They will assess whether or not to widen SR 162 to three, four, or five lanes. Resulting projects may be funded by the City. Since the project is in the planning stages, it is difficult to determine what effects it may have on vehicular access to the study area.

5.4.2 Butte County Public Works Department

The Butte County Public Works Department does not currently have any planned projects that would alter vehicular access to the study area (pers. comm., Crump 2003). However, there will most likely be some projects (such as the repaving of roads) within the study area during the License period. These projects are unknown at this time. The County is currently performing only road maintenance work. No new roads are under construction.

5.4.3 City of Oroville Public Works Department

There are two storm drain projects occurring in the City of Oroville, but they should not affect vehicular access to the study area (pers. comm., Palaquin 2003). The first project is on Feather River Boulevard and involves improving storm drains, repaving the street, striping, traffic control and valve/manhole adjustment. The project runs from Oroville Dam Boulevard to Georgia Pacific Way. Repaving of Feather River Boulevard has already begun. The Boulevard currently remains open, but lanes may be closed as the project continues. The Feather River Boulevard project should be done within the next year. This project should not affect access to the Project area because vehicular access on SR 162 will remain open and therefore access to the Feather River and OWA will not be limited. The results of the project (i.e., improved storm drains, repaved street) will not affect access to the Project area.

The second City of Oroville project is the "Oroville STIP 2000 Rehabilitation of Segment 6 and a portion of Segment 7." This project is also a storm drain improvement/repaving, but is located on Montgomery Street and Washington Avenue. This project is currently up for bid. This project should not affect access as it is relatively removed from the Oroville Project area, and alternative routes around Montgomery Street will be available.

There is also a plan to widen Table Mountain Boulevard, but it has recently been delayed another year due to funding. It is not known when this project will begin. This project will run from Grand Avenue to the bridge over the Feather River on Table Mountain Boulevard. Currently, Table Mountain Boulevard consists of two lanes southbound and one lane northbound. The project entails widening the street to add another lane northbound and a bike lane. The bridge will also be widened to include two bike lanes and another lane northbound. Access to the study area should not be greatly affected, but access may be slower if traffic is reduced to only one lane on Table Mountain Boulevard. Closure of Table Mountain Boulevard is not anticipated.

5.4.4 United States Forest Service

The Plumas National Forest is located adjacent to the Oroville Facilities. The Feather River Ranger District administers this area. There are currently no plans to alter vehicular access to the study area from USFS managed lands (pers. comm. Taylor 2003). There are no projects planned within the next one to two years to build new roads, improve existing roads, close roads, or limit access around Lake Oroville. The USFS is unable at this time to predict future access-related projects beyond these two years.

5.4.5 Bureau of Land Management

The Redding Field Office administers the BLM lands surrounding the Oroville Facilities. There are currently no plans for any projects that may affect access (pers. comm.

Williams 2003). In fact, there are no plans for any projects in this area. The small scattered parcels of land owned by the BLM in this area are not actively managed. The BLM is currently working to transfer these small parcels to the State of California. If the transfer takes place, many may become part of LOSRA and development of these lands may affect access to the study area.

5.4.6 Department of Parks and Recreation

Upon consulting with the Department of Parks and Recreation, it was found that DPR currently has no projects that would alter vehicular access in the study area (pers. comm., Feazel 2003). Projects may occur within the period of the License, such as alterations at Lime Saddle including redoing the entrance road, but there are no specific projects known at this time. An update to the General Plan for Lake Oroville may be done within the next two years, which may make recommendations for changes in access or facilities that may alter vehicular access to the study area. Again, these future projects are unknown at this time, but it is anticipated that the Recreation Plan developed for relicensing will be consistent with existing and future General Plans.

5.4.7 Department of Boating and Waterways

There is one project involving the Department of Boating and Waterways (DBW) that may change vehicular access (pers. comm., DiGiorgio 2003). The project involves creating a parking lot and paving the boat ramp at the Department of Fish and Game (DFG) Area C, on the north side of the Thermalito Afterbay outlet. This project would entail DBW partnering with DFG and DWR. DFG would manage the project's environmental work, and DWR would pave part of the gravel entry road at the Outlet. The DBW would pave the rest of the access road and would be responsible for the parking lot and boat ramp improvements. The project could occur as early as fiscal year 2003-04 or as late as 2004-05 if funding is provided in the State budget. By the end of 2003, the DBW will know if the project will receive funding and can proceed. If the project does proceed, vehicular access to this part of the OWA would be improved. The paved road, parking area, and especially the paved boat ramp will allow more types of vehicles to launch boats at this boat ramp at more times throughout the year. Currently, only four-wheel drive vehicles can launch from this ramp and even with four wheel drive, cars frequently get stuck due to deep mud on the ramp. Since DBW plans five years into the future and the license period will be 30 to 40 years or more, it is not known what other projects may take place in the remaining years of the License.

5.4.8 Department of Fish and Game

The only project DFG currently has that may affect access is the project described above in the DBW section (pers. comm., Meinz 2003). DFG acknowledges other improvement projects are possible, but due to the State's budgeting issues, it is

unknown at this time if any of these new projects will occur (pers. comm., Atkinson 2003).

5.4.9 Department of Water Resources

The DWR has several projects which may alter vehicular access in the study area (pers. comm., Rischbieter 2003). One is the project with DBW and DFG to make improvements to the boat launch ramp at Thermalito Afterbay outlet, described above. The following describes the proposed Interim Recreation projects that relate to roads and vehicular access to recreation. Some of the projects have been completed or are in the process of being constructed:

Loafer Creek Equestrian Camp Improvements. The access road to Loafer Creek Equestrian Camp, formerly gravel, has been recently paved. However, public access to this area has not been altered by the paving of the access road. The same visitors who used this road when it was gravel will likely continue to use it now that the road is paved. The paving was mainly done for dust reasons and may attract additional equestrian users. An unpaved shoulder was maintained to enhance equestrian use.

Group Staging Area. The parking area on the northwest side of the Diversion Pool was dirt and has now been graded and graveled. Formerly closed to the public, this has improved access by making the parking lot suitable for group events.

Saddle Dam Improvements. Improvements to this area include grading and graveling the parking area. As with the group staging area, access has been improved by making this parking lot more user-friendly. Visitors who may have avoided this parking area because it was rough or muddy can now park here under better conditions. The access road to this area could be paved in the future; however, this should not change nor significantly improve access.

Shooting Range. The road and parking area within the Shooting Range have been realigned and graveled. This has improved access by extending the season of use for this recreation site. Previously, the road and parking area were dirt and became muddy, puddled, and less usable during the winter months. With a gravel road and parking area, this area will drain better and be therefore usable throughout more of the year.

Vehicle Access at Lakeland Boulevard. This pending project would change vehicular access within the Project area, by allowing vehicular access from Lakeland Boulevard to nearer the shore of the Diversion Pool. Currently off of Lakeland Boulevard, there is a trail staging area. Due to safety and legal issues, vehicle access from the trail and to the Diversion Pool has been closed. The public would like access to this area again. In providing this access, the DWR proposes to gravel the existing dirt service road and put in a small parking lot and picnic area at the bottom of the hill near the shoreline of the

Diversion Pool. This would allow the public to have vehicular access closer to an attractive area where there is currently only trail access.

Upgrade Roads to Facilities. This project, to upgrade roads to facilities, would modestly improve vehicular access to the study area. At this point, it has included paving the entrance to the Loafer Creek Equestrian Campground and the other grading and graveling projects mentioned above. The lone outstanding element of this proposal is to realign and pave the entrance to the Wilbur Road (Thermalito Afterbay) Boat Ramp. It would improve and enlarge that facility, but also abandon direct access to/from SR 162. However, this is not expected to be a significant change because access from Wilbur Road would be improved. This project would be implemented cooperatively by DWR and DBW.

5.4.10 Summary of Effect of Future Study Area Development During New License Period

Projects slated for the next license period that are expected to affect vehicular access within the project area are listed in Table 5.4-1. Most of the agencies and departments contacted about future projects only plan a few years in advance. Therefore projects other than those listed here may be developed within the new license period, and eventually may affect vehicular access within the project area.

Table 5.4-1. Summary of future projects that effect vehicular access.

Agency/Department	Project	Effects
Caltrans	SR 70 Extension	Construction may affect access to OWA at both SR 70 and Pacific Heights Road entrances, Ophir Road interchange will make access to Pacific Heights Road from Ophir Road safer
DBW, DFG, DWR	Thermalito Afterbay Outlet Improvements	Will allow more types of vehicles to launch at the boat launch ramp at more times of the year or throughout the year
DWR	Vehicle Access at Lakeland Blvd.	Will allow vehicular access to southern edge of Diversion Pool where there is currently only trail access
	Wilbur Road (Thermalito Afterbay) Boat Ramp	Will improve vehicular access and circulation at this facility

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6.0 CONCLUSIONS

In general, transportation routes to Project area recreation sites are without constraints to vehicular access. Roads leading to areas that receive the highest use are paved and in good condition. Average and low use areas are also supplied by paved roads in good condition. There are some instances where roads are in poor condition at low use areas, such as within the OWA (many dirt/gravel roads within the OWA are in poor condition). Recreation management goals will determine what recreation areas will be improved or expanded in the future and, thus, what roads may need to be widened or improved. If the management goals at the OWA are to minimize development or otherwise provide a more primitive driving experience, then it may be appropriate to have roads of lower standard.

6.1 ROAD TYPE AND CONDITION SUMMARY

Roads have been categorized by type and condition, with use levels assigned to recreation sites based on the popularity of the site.

As shown in Table 6.1-1, the majority of roads are in good to adequate condition. All roads leading to high and average use areas are in good to adequate condition except Foreman Creek Road, which falls below a Level 4 (unpaved).

A subset of roads is included in Table 6.1-1 that do not lead to specific recreation sites. These roads were inventoried to provide access data as input to evaluate potential for recreation enhancements. Figure 5.1-1 shows the key for detail maps. All of the roads listed in Table 6.1-1 are found on the detail maps, Figure 5.2-1 through 5.2-4.

Table 6.1-1. Road and highway condition summary.

Road	Type	Condition	Associated Recreation Site Use Level	Recreation Site or Significance to Recreation	Map No.
Principal Arterial					
SR 70	Paved (L5)	Good to Adequate	High, Average & Low	All sites	5.2-1 5.2-3
SR 99	Paved (L5)	Good to Adequate	High, Average & Low	All sites	5.2-3
SR 162	Paved (L5)	Good to Adequate	High, Average & Low	All sites	5.2-1 5.2-2 5.2-3
SR 191	Paved (L5)	Good to Adequate	High, Average & Low	All sites	5.2-1
Minor Arterial					
Cherokee Road	Paved (L5)	Good to Adequate	Average	Bloomer, Goat Ranch BIC, Vinton Gulch & Diversion Pool	5.2-1 5.2-2 5.2-3
Durham-Pentz Road	Paved (L5)	Good to Adequate	High	Lime Saddle, Nelson Bar Car-top BR	5.2-1
Forbestown Road	Paved (L5)	Good to Adequate	Average	Craig Saddle BIC, Stringtown	5.2-2
Grand Avenue	Paved (L5)	Good to Adequate	Average & Low	South Thermalito Forebay	5.2-3

Table 6.1-1. Road and highway condition summary.

Road	Type	Condition	Associated Recreation Site Use Level	Recreation Site or Significance to Recreation	Map No.
Kelly Ridge Road/Miners Ranch Road	Paved (L5)	Good to Adequate	High & Low	Bidwell Canyon, Saddle Dam DUA, & Visitors Center	5.2-2
Larkin Road	Paved (L5)	Good to Adequate	Average	Thermalito Afterbay, OWA, Afterbay Outlet BR, Clay Pit SVRA, Rabe Road Shooting Range	5-2.3
Nelson Avenue	Paved (L5)	Good to Adequate	Low	Feather River Fish Hatchery	5.2-3
Oroville Bangor Highway/Los Verjeles Road	Paved (L5)	Good to Adequate	NA[1]	Connects Miners Ranch Rd. to Butte County Line	5.2-1
Oroville Dam Boulevard	Paved (L5)	Good to Adequate	High & Low	Spillway DUA & Bedrock Park, Riverbend Park	5.2-2 5.2-3
Pentz Magalia Highway	Paved (L5)	Good to Adequate	High	Lime Saddle, Nelson Bar Car-top BR	5.2-1
Table Mountain Boulevard	Paved (L5)	Good to Adequate	Low	Feather River Fish Hatchery	5.2-3
Collector					
4-Mile Ridge Road	Unpaved (L4)	Good to Adequate	NA[1]	Connects 162 to Poe Powerhouse Rd.	5.2-1
Bald Rock Road	Paved/Unpaved (L4 & L5)	Good to Adequate	NA[1]	Connects 162 to Bean Creek Rd.	5.2-1
Bean Creek Road	Unpaved (L3)	Poor	NA[1]	Connects Big Ridge Rd. and Bald Rock Rd. to Eckards Lane	5.2-2
Big Bend Road	Paved (L5)	Good to Adequate	Average	Dark Canyon Car-top BR	5.2-1
Bloomer Hill Road	Unpaved (L2 & L3)	Poor	NA[1]	Connects Berry Creek Rd. to Encina Grande Rd.	5.2-1
Canyon Drive	Paved (L5)	Good to Adequate	High	Oroville Dam, Spillway DUA	5.2-2
East Hamilton Road	Paved (L5)	Good to Adequate	Low	Thermalito Afterbay, Trail Access	5.2-3
Encina Grande Road	Unpaved (L4)	Good to Adequate	NA[1]	Potential shoreline access	5.2-1
French Creek Road	Unpaved (L4)	Good to Adequate	NA[1]	Connects Poe Powerhouse Road	5.2-1
Heritage Road	Paved (L5)	Good to Adequate	High	Saddle Dam DUA, Bidwell Canyon, Lake Oroville Visitors Center/Kelly Ridge DUA	5.2-2
Kelly Ridge Road	Paved (L5)	Good to Adequate	High & Low	Saddle Dam DUA, Bidwell Canyon, Lake Oroville Visitors Center/Kelly Ridge DUA	5.2-2
Hurleton Road	Paved (L5)	Good to Adequate	Average	Stringtown Car-top BR	5.2-2
Long Bar Road	Paved (L5)	Good to Adequate	Low	Lakeland Boulevard DUA	5.2-16
Lower Enterprise Road	Unpaved (L4)	Good to Adequate	NA[1]	Potential shoreline	5.2-2

Table 6.1-1. Road and highway condition summary.

Road	Type	Condition	Associated Recreation Site Use Level	Recreation Site or Significance to Recreation	Map No.
				access	
Lower Wyandotte Road	Paved (L5)	Good to Adequate	NA[1]	Connects Ophir Road to Oroville Bangor Highway	5.2-3
Lumpkin Road	Paved (L5)	Good to Adequate	Average	Craig Saddle BIC	5.2-2
Montgomery Street	Paved (L5)	Good to Adequate	Low	Bedrock and Riverbend Parks	5.2-3
Wilbur Road (north)	Paved/Unpaved (L4 & L5)	Good to Adequate	Low	Model Aircraft Flying Area, North Wilbur Rd. BR	5.2-3
Ophir Road	Paved (L5)	Good to Adequate	NA[1]	Connects SR 70 to Lower Wyandotte Rd.	5.2-3
Oregon Gulch Road	Unpaved (L4)	Good to Adequate	Average	Bloomer BIC Sites	5.2-2 5.2-3
Pacific Heights Rd.	Paved (L5)	Good to Adequate	Low	OWA	5.2-3
Pentz Road	Paved (L5)	Good to Adequate	High & Average	Lime Saddle, Nelson Bar Car-top BR	5.2-1
Ponderosa Way	Unpaved (L3 & L4)	Poor to Good/ Adequate	NA[1]	Connects Lower Enterprise Rd. to Lumpkin Rd.	5.2-2
Simmons Road	Paved (L5) & Unpaved (L4)	Good to Adequate	NA[1]	Connects to Middle Fork Lane & Big Ridge Rd.	5.2-2
Local					
Aquatic Center Access Road	Paved (L5) to Aquatic Center, Unpaved (L4) beyond Aquatic Center	Good to Adequate	High	North Thermalito Forebay	5.2-3
Arroyo Drive	Paved (L5)	Good to Adequate	High	Bidwell Canyon	Not shown
Bell Ranch Road	Unpaved (L4) to gate	Good to Adequate	NA	Potential shoreline access	5.2-1 5.2-2
Berry Creek Road	Unpaved (L2)	Poor	NA	Potential shoreline access	5.2-1
Bidwell Canyon Road	Paved (L5)	Good to Adequate	High	Bidwell	5.2-2
Big Ridge Road	Unpaved (L2)	Poor	NA[1]	Connects Simmons Rd. to Bean Creek Rd.	5.2-2
Bryant Road	Unpaved (L4)	Good to Adequate	Average	Feather Falls Recreation Trail	Not shown
Burma Road	Unpaved (L4)	Good to Adequate	Average	Diversion Pool (Burma Road) DUA	5.2-3
Colina Way	Paved (L5)	Good to Adequate	Low	Lakeland Boulevard DUA	5.2-16
Condor Road	Closed (L4) to gate	Good to Adequate Unknown beyond gate	Average	Goat Ranch BIC	5.2-1 5.2-2
Craig Access Road	Unpaved (L4)	Good to Adequate	Average	Craig Saddle BIC	5.2-2
Dark Canyon Road	Paved (L5)	Good to Adequate	Average	Dark Canyon Car-top BR	5.2-1
DWR Access Road North of Dam (near Kelly Ridge Road)	Closed	Unknown	NA	Potential shoreline access	Not shown
DWR Access Road to Craig Saddle	Unpaved (L4)	Good to Adequate	Average	Craig Saddle BIC	5.2-2

Table 6.1-1. Road and highway condition summary.

Road	Type	Condition	Associated Recreation Site Use Level	Recreation Site or Significance to Recreation	Map No.
Eckards Lane	Private, unpaved (L4)	Good to Adequate	NA	Potential shoreline access, Bald Rock Canyon Access	5.2-2
Enterprise Road	Paved (L5)	Good to Adequate	Average	Enterprise BR/DUA	5.2-2
Feather River Boulevard (L5)	Paved (L5)	Good to Adequate	Low	Bedrock Park	5.2-3
Fernwood Street	Paved (L5)	Good to Adequate	Low	Lakeland Boulevard DUA	5.2-16
Foreman Creek Road[2]	Paved to 800' msl	Good to Adequate (L5); seasonal section (L2 to L5)	Average	Foreman Creek BIC & Car-top BR	5.2-2
Garden Drive	Paved (L5)	Good to Adequate	High	North Thermalito Forebay	5.2-3
Georgia Pacific Way	Paved (L5)	Good to Adequate	NA[1]	Connects SR 70 to Baggett Marysville Rd.	5.2-3
Island Bar Hill Road	Private (L1) & unpaved (L4)	Good to Adequate	NA[1]	Potential shoreline access, Bald Rock Canyon Access	5.2-2
Lake Haven Way	Unpaved (L4)	Good to Adequate	NA[1]	Big Bend Access	5.2-2
Lakeland Boulevard	Paved (L5)	Good to Adequate	Low	Lakeland Boulevard DUA	5.2-16
Lausen Street	Paved (L5)	Good to Adequate	Low	Lakeland Boulevard DUA	5.2-16
Lime Saddle access road/campground road	Paved (L5)	Good to Adequate	NA[1]	Lime Saddle	5.2-1
Lime Saddle Road	Paved (L5)	Good to Adequate	High & Average	Lime Saddle, Nelson Bar Car-top BR	5.2-1
Lime Saddle Marina Road	Paved (L5)	Good to Adequate	High	Lime Saddle Marina	5.2-2
Loafer Creek Road (L5)	Paved (L5)	Good to Adequate	High	Loafer Creek	5.2-2
Middle Fork Lane	Unpaved (L4)	Good to Adequate	NA[1]	Potential shoreline access	5.2-2
Nelson Bar Road	Paved (L5)	Good to Adequate	Average	Potential shoreline access	5.2-1
North Fork Lane (gated)	Unknown	Unknown	NA[1]	Connects to Foreman Creek Rd. to Bell Ranch Rd.	5.2-2
Oregon City Trail Road	Private, gated (L4)	Good to Adequate	Average	Bloomer BICs	5.2-2
Oroville Dam Boulevard	Paved (L5)	Good to Adequate	High	Oroville Dam, Spillway DUA	5.2-2 5.2-3
Road Over Oroville Dam	Paved (L5)	Good to Adequate	High	Spillway DUA/BR	5.2-2
Outpost Road	Private (L1), Unpaved (L4)	Good to Adequate	NA[1]	Connects SR 162 to French Creek Rd.	TBD
OWA levee roads	Low Quality (L3) and High Clearance (L2)	Poor	Low	OWA	5.2-3
Palm Avenue	Paved (L5)	Good to Adequate	Low	OWA	5.2-3
Poe Powerhouse Road	Unpaved (L2)	Poor	NA[1]	Potential shoreline access	5.2-1
Rabe Road	Paved (L5)	Good to Adequate	Low	Shooting Range	5.2-3
Rachel Mountain Drive	Unpaved (L4)	Good to Adequate	NA[1]	Potential shoreline access	5.2-2

Table 6.1-1. Road and highway condition summary.

Road	Type	Condition	Associated Recreation Site Use Level	Recreation Site or Significance to Recreation	Map No.
Rocky Top Road	Low Quality (L3) and High Clearance (L2)	Poor	NA[1]	Potential shoreline access	5.2-1
Royal Oaks Drive (L5)	Paved (L5)	Good to Adequate	High	Lake Oroville Visitors Center/Kelly Ridge DUA	Not shown
Saddle Dam access road	Unpaved (L4)	Good to Adequate	Low	Saddle Dam DUA	5.2-2
Stringtown DWR Access Road/Canal Road, Miners Ranch Canal			Average	Stringtown Car-top BR	5.2-2
Stringtown Road (L5)	Paved (L5)	Good to Adequate	Average	Stringtown Car-top BR	5.2-2
Tippy Top Road	Unpaved (L4)	Good to Adequate	NA	Potentially connects Rocky Top Rd. to Condor Rd.	5.2-2
USFS Road 20N59	Closed (L1)	Poor	Low	Potential shoreline access, Bald Rock Canyon Access	Not shown
Vance Avenue	Paved (L5)	Good to Adequate	Low	OWA – Afterbay Outlet Camping Areas F & G, One-Mile Pond	5.2-3
Vinton Gulch Road	Unpaved (L4)	Good to Adequate	Average	Vinton Gulch Car-top BR	5.2-1

[1] *These roads potentially lead to many recreation sites.*
[2] *Foreman Creek Road is paved to a gate north of the BR. The road beyond the gate is unpaved. During high water the road is underwater. When this section of road is not underwater, it is in poor condition and accessible only by four-wheel drive vehicles.*

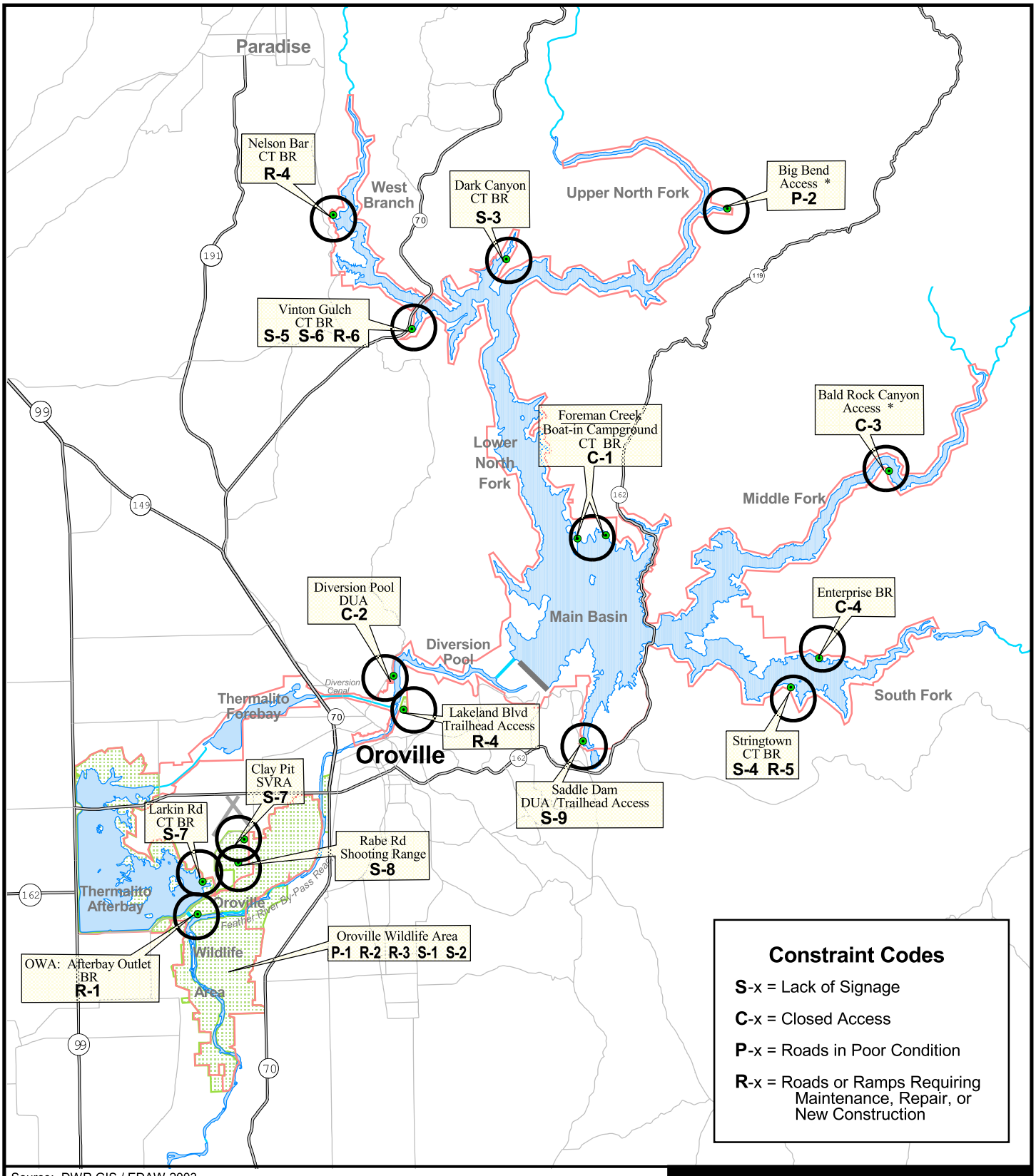
6.2 SUMMARY OF CONSTRAINTS AND OPPORTUNITIES

For the most part, constraints to vehicular access are minimal. Table 6.1-2 summarizes the constraints that were noted when reviewing vehicular access to each recreation site. All of these sites listed receive fairly low levels of use by visitors. The table lists the opportunity presented by each constraint. The constraints to vehicular access fall into four main categories: (1) lack of signage; (2) closed access; (3) roads in poor condition; and (4) roads or ramps requiring maintenance, repairs or new construction. These constraints are located on Figure 6.2-1 along with use level categories. Potential regional highway constraints are addressed in Oroville Facilities Relicensing Study R14 Regional Recreation and Barriers to Recreation.

Temporary constraints, not listed in the table, include full parking lots, traffic congestion on busy weekends, poor seasonal maintenance, and heavy mixed use. Mixed use could cause constraints if vehicles and pedestrians and/or cyclists are using the same stretches of road at the same time. Temporary constraints that occur on a regular basis may need to be addressed by DWR but would require notifications from staff or regular visitors to be identified.

Figure 6.2-1. Constraints to Vehicular Access.

[8 ½ x 11]



Constraint Codes

S-x = Lack of Signage

C-x = Closed Access

P-x = Roads in Poor Condition

R-x = Roads or Ramps Requiring Maintenance, Repair, or New Construction

Source: DWR GIS / EDAW 2003

1 0 1 2 3 4 5 6 Miles

Scale 1 : 205,920
1" = 3.25 miles

LEGEND

Recreation Resources

Sites

NOTE: All sites with constraints are considered low use areas.

* Sites are informal, undeveloped access points.

Jurisdictions

FERC Boundary

Oroville Wildlife Area

STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES

Oroville Facilities Relicensing
FERC Project No. 2100

Figure 6.2-1
(R1)

Constraints to Vehicular Access

Prepared by: PJ -- EDAW, Inc.

Date 9/24/03

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6.3 RECOMMENDATIONS

Although there are no major constraints to vehicular access within the Project area, there are several minor constraints at low use areas (as listed in Table 6.1-2). Recreation management goals will determine which recreation areas will be improved or expanded in the future and, thus, what roads may need to be widened or improved. It is recommended that, where missing, clear directional signs be placed on major roads to facilitate ease of use by visitors to all public sites. Road signs at intersections should also be added to assist visitors in navigating roads around the Oroville Facilities.

If appropriate, DPR and DWR may want to consider changing gate closing policies at some sites. Managers for sites where the access gate is normally closed at dusk may want to consider leaving the gate open all night or until midnight during the peak recreation season (late spring to midsummer). However, such decisions also need to be reviewed in the context of enforcement and security issues they relate to.

Roads in poor condition should be reviewed by department managers for potential repair and upgrading. Upgrading or repairing certain roads may not meet department objectives. Some roads within the OWA should be considered for upgrading to make the site more accessible, if that does not conflict with overall goals for the area.

Areas where there are constraints, such as a lack of parking at Vinton Gulch, should be reviewed for potential establishment of parking closer to the shoreline and boat launch. One of the boat-in camps may be suitable for construction of a long pedestrian ramp that could make the site easier to access (and perhaps Americans with Disabilities Act [ADA] accessible) during lower water levels. The lower portions of the Stringtown BR and Nelson Bar could be refurbished if it is determined that there is an increasing need for car-top boat launching at these sites.

Table 6.1-2. Vehicular Access Constraints and Opportunities.[1]

Recreation Site		Road	Constraint	Potential Actions	Section No.
Lack of Signage (S)					
S-1	OWA (including camping areas, BRs and day use areas)	South of Vance Avenue (within the OWA)	No signs warn drivers that the road becomes high clearance only (L2). There are few opportunities to turn around on the high-clearance stretch.	Install signage.	5.2.1.5 & 5.2.3.11
S-2	OWA (including camping areas, BRs and day use areas)	OWA entrances	Lack of signs at several entrances to OWA, at Palm Avenue, Vance Avenue, and SR 162 at the DWR headquarters inhibit clear navigation for drivers.	Provide directional signs at intersections. Place a map sign at entrance. Provide direction signs for camping areas.	5.2.1.5 & 5.2.3.11
S-3	Dark Canyon BR	SR 70	No signs off SR 70.	Place directional signs on SR 70 to Dark Canyon .	5.2.2.4
S-4	Stringtown Car-top BR	Forbestown Road Hurleton Rd/Stringtown Rd Intersection	There is no directional sign on Forbestown Road, making it difficult for visitors to locate the site. The sign at the intersection cannot be seen by cars approaching from the east.	Place directional sign on Forbestown Road that is located for advance note to drivers. Place directional sign on both sides of intersection.	5.2.2.8
S-5	Vinton Gulch Car-top BR	SR 70	There is no directional sign on SR 70, making the site difficult to locate.	Place directional sign on SR 70.	5.2.2.9
S-6	Vinton Gulch Car-top BR	Cherokee Road	There is a poor directional sign on Cherokee Road, making it difficult and somewhat unsafe for visitors to turn into the site if they aren't familiar with the roads.	Place new signs on Cherokee Road for traffic from both directions that are located for advanced note to drivers	5.2.2.9
S-7	SVRA and Larkin Rd. (Thermalito Afterbay) Car-top BR	Larkin Rd. SR 162	A lack of signage would cause navigational difficulty for some visitors.	Place directional signs on Larkin Rd. and SR 162 for the SVRA and for Larkin Rd. Car-top BR.	5.2.2.6 & 5.2.3.5
S-8	Rabe Road Shooting Range	Larkin Rd. SR 162	A lack of signage could cause navigational difficulty for some visitors.	Directional signs could be placed on Larkin Road and SR 162 to help visitors find the site.	5.2.3.12
S-9	Saddle Dam DUA	NA	Sign is too close to the entrance and is located on the same post as a residential mailbox.	Place directional sign further from entrance for advance note to drivers.	5.2.3.14

Table 6.1-2. Vehicular Access Constraints and Opportunities.[1]

Recreation Site		Road	Constraint	Potential Actions	Section No.
Closed Access (C)					
C-1	Foreman Creek BIC & Car-top BR	NA	Cultural resources are present in an area where shoreline driving was taking place at low pool levels. These areas are now closed at low pool levels. The shoreline and route to island are covered during higher lake levels.	Continue to prohibit vehicular access to preserve cultural resources. No actions are applicable during high pool levels.	5.2.2.5 & 5.2.3.4
C-2	Diversion Pool DUA	NA	Locked gate at sunset. This could prohibit use for equestrians, bicyclists, boaters and hikers wishing to return to their vehicles at the site after sunset.	Gate could be left open all year or just during the peak recreation season if it is determined that there is a public need to use the site at night.	5.2.3.6
C-3	Bald Rock Canyon Access	USFS Rd. 20 N59, Eckard's Ln. Island Bar Rd.	Rugged, unmaintained USFS road prevents public access by whitewater boaters taking out from the Middle Fork of the Feather River -- only options are private roads.	If one of the management goals is to provide shoreline access from the Middle Fork of the Feather River, then the USFS road would have to be improved.	5.2.3.2
C-4	Enterprise BR	NA	Cultural resources are present in an area where shoreline driving was taking place at low pool levels. These areas are now closed at low pool levels.	Continue to prohibit vehicular access to preserve cultural resources. No actions are applicable during high pool levels.	5.2.3.7
Roads in Poor Condition (P)					
P-1	OWA (including camping areas, BRs and day use areas)	NA	While the roads leading to the OWA are in adequate condition, the roads within the OWA are generally in poor condition and could deter some potential recreators.	Improve some roads within the OWA if improving roads meets management goals. Access consistency of road conditions with desired recreational experience.	5.2.1.5 & 5.2.3.11
P-2	Big Bend Access	Poe Powerhouse Road	Poe Powerhouse Road is passable only in a four-wheel drive. There are steep drop-offs to the river along the road. The road is also narrow and is perhaps more appropriate for trail use activities.	If one of the management goals is to provide shoreline access off of Poe Powerhouse Road, then the road would have to be improved.	5.2.3.3
Roads or Ramps Requiring Repair, Maintenance or New Construction (R)					
R-1	Afterbay Outlet BR (OWA)	NA	Ramp is in poor condition.	DWR has scheduled to improve the ramp including paving the surface.	5.2.3.1
R-2	OWA	OWA levee road near One-Mile Pond	Drop-off in levee road.	Rebuild road, close road or place sign prior to drop-off.	5.2.3.11

Table 6.1-2. Vehicular Access Constraints and Opportunities.[1]

Recreation Site		Road	Constraint	Potential Actions	Section No.
R-3	OWA (including camping areas, BRs and day use areas	OWA roads	Trees frequently falling onto roads.	Provide maintenance.	5.2.1.5 & 5.2.3.11
R-4	Nelson Bar Car-top BR	NA	Limited ability to launch watercraft at this site during low water due to the BR surface blockage.	Move mound of dirt; repair boat launch ramp.	5.2.2.7
R-5	Stringtown Car-top BR	NA	The BR road and ramp pavement are in poor condition beyond the upper concrete portion. This limits the types of vehicles that can access the shoreline at this site at lower pool levels.	Resurface BR.	5.2.2.8
R-6	Vinton Gulch Car-top BR	NA	Limited parking at the site makes it difficult to access. If there are several vehicles, drivers have to park quite a distance from the shoreline.	Build parking closer to the shoreline.	5.2.2.9
R-7	Lakeland Blvd. DUA	NA	There is no vehicular access to the shoreline.	DWR has requested purchase or easement of land from Union Pacific Railroad adjacent to the DUA to develop vehicular shoreline access to the Feather River.	5.2.3.9

[1] *Only recreation sites with constraints to vehicular access are included in this table.*

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